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ARCHÆOLOGICAL INVESTIGATIONS IN KAMCHATKA

BY

WALDEMAR JOCHELSON

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PREFACE

121 In 1925 the Carnegie Institution of Washington published my report, *Archæological Investigations in the Aleutian Islands*. The present work deals with the archæological investigations in Kamchatka, based on fieldwork conducted by the author in 1910–1911 at the expense of the late F. P. Riaboushinsky, Moscow banker, and under the auspices of the Imperial Russian Geographical Society. Both works form a part of the results of the author's studies as a leader of the Ethnological Division of the so-called Kamchatka Expedition, and may be regarded as publications, in English, of the Russian expedition. The reasons for the study of the Aleutian Islands by the Ethnological Division of the Kamchatka Expedition are given in my work *Archæological Investigations in the Aleutian Islands* (page 2).

113 The leaders and members of the other divisions of the expedition, who worked in Kamchatka only, are still working out their material. The following publications have appeared in Russian. Professor P. J. Schmidt, member of the Russian Academy of Sciences and leader of the Zoological Division, published the first volume of *The Zoology of Kamchatka*, Moscow, 1916 (1–432 pages, 4°). Professor V. L. Komarov, member of the Russian Academy of Sciences and leader of the Botanical Division, published the first volume of *The Vegetation of Kamchatka*, Moscow, 1912 (1–458 pages, 4°). Dr. V. A. Vlasov, the chief of the Meteorological Bureau of Moscow and leader of the Meteorological Division, published Volume I, Part 1, *The Climate of Kamchatka;* Part 2, *Kamchatka's Waters*, Moscow, 1916 (I–VII, 1–370 pages, 4°).

The above Russian publications of the Kamchatka Expedition were not written by the division leaders alone, but there are also contributions by their assistants, fifteen in number, specialists in different branches of zoology, botany, geology and meteorology.

The leader of the Geological Division, the mining engineer and member of the Geological Survey of Petrograd, S. A. Konradi, has published only a brief account of his investigations of the Kamchatka volcanoes. After the revolution of October 1917 in Russia he proceeded to Prague, Czechoslovakia, where he now lives.

113 The following material of the writer has not yet been published: grammars on
128 the Aleutian and Kamchadal languages, and material on the folklore, history, anthropology, ethnology and sociology of the Aleut and Kamchadal. A handbook by the writer on the anthropology and ethnology of the peoples of Asiatic Russia and adjacent countries is now in print by the American Museum of Natural History in New York, and a volume on the Yakut people of Siberia (prehistory,

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113 history, anthropology, language, folklore, ethnology and sociology) is now in preparation for the publications of the American Museum.

128 The specimens described in this book are on exhibition in the Central Museum for Ethnography (former Count Rumiantzev's Museum) in Moscow.

128 Acknowledgment is made to Professor B. M. Sokolov, the Director of the Central Museum for Ethnography in Moscow, and his assistant, Dr. B. S. Shukov, who supervised the work of illustrations; to the mineralogist, Professor A. G. Titov of the Moscow University, who determined the stone material for implements and weapons; to the scientific collaborator of the Central Museum, Madame E. I. Goryunova, and the artist, Mr. Gutentag, who made drawings from specimens of the Kamchatka collection; to the photographer of the Central Museum, Mr. P. N. Bashirov, for the photographs taken of specimens in the Central Museum.

Mr. N. N. Krijanovsky of the staff of the American Geographical Society in New York made drawings of the map showing the distribution of the palæolithic, neolithic, bronze and iron stations in Northern Asia and the map of Kamchatka Peninsula.

Mrs. Jochelson, as a member of the Ethnological Division of the Kamchatka Expedition, assisted me in excavating ancient Kamchadal village sites and in taking photographs during our fieldwork. As a Doctor of Medicine she made herself useful by treating the numerous Kamchadal patients.

Finally the author is under obligation to the American Museum of Natural History in New York for assistance in clerical work and for putting at his disposal office room while writing this report.

WALDEMAR JOCHELSON.

American Museum of Natural History,
New York, March 27, 1928.

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ARCHÆOLOGICAL INVESTIGATIONS IN KAMCHATKA

CHAPTER I.

HISTORY

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In 1632 the Russian conquerors of Siberia settled on the Lena River and built a fortified town, Yakutsk, which they used as a central base for further military expeditions. In the course of these expeditions they reached Okhotsk and Bering Seas on the east, the Arctic Ocean on the north and the Amur River on the south.

In the year 1649 the fortress Anadyrsk, on the river of the same name, was founded by the Cossack Deshnev, who had traveled in boats from the mouth of the Kolyma River through Bering Strait to the mouth of the Anadyr River.

Since the founding of the fortress Anadyrsk, Cossack parties have imposed tribute on the Koryak living to the south of Anadyr. From the Koryak the Cossacks learned that the best peltries, such as sables, sea otters (*Enhydris marina*), and sea bears (*Otaria ursina*) were obtained by the Koryak themselves through exchange from Kamchatka. This discovery led to an expedition to the Kamchatka Peninsula.

In 1696, Atlassov, commandant of the fortress Anadyrsk, sent a detachment under the command of the Cossack Morozko to the peninsula of Kamchatka to verify the reports of its wealth in peltries. The following year, Atlassov undertook the journey himself. He sent Morozko with his detachment to the Bering Sea, while he advanced along the coast of the Penshina Bay, gathering tribute from the crossing country. Morozko did likewise on the coast of Bering Sea. Atlassov and Morozko met on the Tighil River where the Kamchadal territory begins. They advanced together, reached the Kamchatka River, received tribute from the Kamchadal who were living in the valley of the Kamchatka River, and founded the fortress Verkhne-Kamchatsk.

Thus the conquest of Kamchatka was begun. When the Russians had settled in Kamchatka, the Peninsula, as well as the Koryak territory to the north of it, became dependent upon the fortress Anadyrsk. The sea route from Okhotsk to Kamchatka was at that time unknown, and the land journey through the territory of the turbulent Koryak was considered quite impossible. In those days Kamchatka was the most valuable acquisition of the Russian Government in the Far East, and communications of the Yakutsk Administration with Kamchatka

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had to be maintained over a long and dangerous route. The way from Kamchatka to Yakutsk lay through the entire Koryak country to the Anadyr River; from there to the Kolyma River over the Stanovoi Mountain; and from there the route lay over the Indighirka and the Yana countries and the Verkhoyansk range of mountains. A great number of the Cossack parties, which started from Kamchatka with tributes of furs, never reached the fortress Anadyrsk. The Koryak killed the Cossacks from ambush and kept the furs. Transports, that had safely reached Anadyrsk, would arrive in Yakutsk three years after they had left Kamchatka. Cossack detachments carrying provisions, gunpowder, arms and cannons from Yakutsk to Kamchatka were also harassed by Koryak attacks. To put an end to such conditions a direct sea-route from Okhotsk to Kamchatka had to be discovered, and the Koryak had to be finally subdued in order that the winter route might be rendered safe.

Until the sea-route from Okhotsk was discovered, the Cossacks of the Kamchatka Peninsula tried to utilize the Pacific Ocean route to shorten the dangerous land trip from Kamchatka to Anadyrsk. They built large boats of boards, and starting from the mouth of the Kamchatka River traveled northward to the mouth of the Alutor River. In 1752, in order to facilitate these expeditions, the Cossacks built a settlement, Alutorsk, protected by a wall, at the mouth of the Alutor River, where Cossack parties could find shelter against the attacks of the Alutor Koryak. During the winter, Cossacks traversed the tundra from the fortified settlement, Alutorsk, to the mouth of the Oklan River, a tributary of the Penshina River, on which a fortress, Oklansk, was built. From Oklansk they traveled northward along the valley of the Penshina River and, having traversed the Nalghinsk Mountains, arrived at the Anadyr River. That part of the way from Kamchatka to the Anadyr which lay between Alutorsk and Oklansk was of course not safe from unexpected attacks of the Koryak.

The unsuccessful attempt of 1712 to reach Kamchatka by sea from Okhotsk was followed in 1713 by a special ukase of Peter I, ordering that a sea-route to Kamchatka be found. All attempts, however, failed until 1716, when a successful journey was made from Okhotsk to Tighil in a large boat. Thus the dependence of Kamchatka on the Anadyr route was brought to a close, and communication between the peninsula and Yakutsk was henceforth carried on directly by way of Okhotsk.

THE BERING EXPEDITIONS

The discovery of a sea-route to Kamchatka gave an impetus to geographical explorations in Bering Sea. In 1726 the first expedition of Bering was undertaken, followed by a second in 1737–45. In the interval between these expeditions, which were scientific in character and had no direct relation to the administration of Kamchatka, the Kamchadal were finally subdued.

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Professor Golder[1] is of the opinion that Peter I, on his own initiative, set on foot Bering's Expedition in order to determine whether Asia is united with or

[1] F. A. Golder, *Russian Expansion on the Pacific, 1641–1850*, Cleveland, 1914, p. 133.

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000 separated from America, but there is reason to believe that he was influenced by the German philosopher, Leibnitz. The Russian historian, Vladimir Guerye,[1] found in the library of Hanover among Leibnitz's rough records a draft of a note, written in 1697, which evidently was destined for the Russian Czar. Among many other advices the note contains a recommendation to investigate Northeastern Asia in order to determine the connections between Asia and America. At that time a Russian embassy was passing through Hanover possessions and, as Professor Guerye suggested, Leibnitz's note might have reached the Czar through Mr. Leford, the Swiss adventurer and councilor of Peter the Great. The original of this note was, however, not discovered in the Russian archives. But there exist other traces of connections or direct correspondence between Leibnitz and the Czar. In a letter to Bruss in 1711 Leibnitz says:

"No one except the Czar can solve to the universe this doubt, and this may be regarded as a more glorious and important task than that which has been done by the Egyptian rulers in their time, relating to the investigation of the sources of the Nile."

In September 1712, Leibnitz sent to Bruss a note on the desirability of linguistic investigations and magnetic observations in Russia. At the conclusion he again touches the idea cherished by him, of the connection between the two continents,[2] accompanying it with considerations of great interest.

In a letter of October 26, 1713, to the Czar, writing from Vienna, Leibnitz again reminded him of the same plan. In 1716, Leibnitz and Peter the Great together passed about a week at the watering place of Pirmont (Braunsweig) and there is no doubt that they frequently spoke on this subject. Leibnitz wrote to Burge the following lines:

"The Czar is inquiring about all mechanical arts; but his main interest is concentrated on everything connected with navigation, and therefore he is fond of astronomy and geography. I hope that through him we shall be able to learn whether Asia and America are joined."

On June 22 of the same year he laid before the Czar in Pirmont, through Shaphiroff,[3] a memorandum in which he demonstrated, by points, what the Czar could do with glory in advancing civilization and science, and to clear up the question on the connections of Asia and America. Leibnitz repeats the same idea in another memorandum to the Czar, who also was evidently then in Pirmont. Thus the thoughts on the connection of Asia and America importunately occupied the mind of Leibnitz during twenty years, and he was constantly urging the Czar to solve this problem. Unfortunately wars, inner troubles and other affairs of state prevented the Czar from fulfilling Leibnitz's recommendation earlier, and it was only at the end of his life that he resolved to organize an expedition to solve the problem in which Leibnitz was so much interested.

[1] See Vladimir Guerye, On the Relations of Leibnitz to Peter the Great, according to the unpublished records of Leibnitz in the library at Hanover S. Pet. 1871, pp. 14, 18 (a separate of the Journal of the Department of Education); Collection of Letters and Notes of Leibnitz concerning Russia and Peter the Great, St. Pet. 1873, p. 19; published by the Imperial Russian Academy of Sciences. See also Professor L. S. Berg, *The Discovery of Kamchatka and Kamchatka Expeditions of Bering*, Leningrad and Moscow, 1934, p. 61 (all in Russian).

[2] i. e., whether Asia is separated from America.

[3] Baron Shaphiroff was the vice-chancellor of Peter the Great.

CHAPTER II

JAPANESE SHIPWRECKS NEAR KAMCHATKA SHORE

177-175 Restrictive legislation of the Shoguns, concerning Japanese navigation, tended to keep Japanese boats in home waters, but storms of the rough Japanese Sea often brought them to Kamchatka.

About the end of the seventeenth century one Japanese junk, after losing its mast in a storm, for six months was carried about by the currents until it was thrown up on the western shore of the Kamchatka Peninsula, not far from the mouth of the Opala River. Of the twelve Japanese who were in the junk, three were taken prisoners by the Kamchadal and nine succeeded in escaping in their junk in an unknown direction. Two of the three prisoners soon died from the Kamchadal diet, to which they could not become accustomed. The name of the Japanese who lived was Denbei. The Cossack chief Atlassoff, during his campaign in Kamchatka of 1697–1699, learned from the Kamchadal of their Japanese prisoner. He took him to Anadyr, and in 1701 he was brought to Moscow, and in January 1702 he was presented to Peter the Great. Denbei was the first Japanese who reached Russia and from him the Czar got his first information of Japan. At the order of the Czar, Denbei taught some Russians the Japanese language. The Czar promised to let him go home, but did not keep his word. Denbei was ordered to be baptised and received the name of Gabriel.

In 1710 another Japanese junk was wrecked on Kamchatka's shore to the north of Avacha Bay. There were ten Japanese, four of whom were killed by the Kamchadal and six taken prisoners. Some were taken from the Kamchadal by the Russian conquerors and kept in their fortresses where they were taught Russian. One of the prisoners, Sanime by name, was brought to St. Petersburg in 1714.

In July 1729 a third Japanese vessel was brought to Kamchatka, somewhere between Lopatka and Avacha, having on board 17 Japanese. It was a trading vessel which carried goods from Satzuma to Osaka. Soon after landing the Japanese were discovered by the Cossack chief, A. Stinnikov, and the Kamchadal accompanying him. At first the Japanese were well treated. When the Japanese saw that Stinnikov was plundering goods from their wrecked vessel, they tried to escape in a small boat, but Stinnikov ordered his Kamchadal to overtake and kill the Japanese. A part of them were killed by arrows, lances or sabers, obtained from the Japanese themselves. Some of them were drowned. Only two remained alive—a wounded boy, Gonza, and an adult Japanese, Soza, who were dragged from the water. When the news of the Japanese massacre reached the higher authorities an order was given to arrest Stinnikov, and he was hanged for his crime. Gonza and Soza were sent to European Russia. In 1734 they reached

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St. Petersburg and were presented to the Empress Anna Ioanovna. In the same year they were baptized; Gonza was named Damian Pomortzev, and Soza, Kosma Shultz. They were charged to teach Japanese to the students of the Academy of Sciences. Neither lived long—Soza died in 1736 at the age of 43 and Gonza in 1739, being only 21.

Some years later (1745) other Japanese wrecked at Kamchatka's shore were brought to St. Petersburg for the same purpose, but the Japanese were simple fishers and hardly could be used as teachers.[1] Such wreckages of Japanese ships repeatedly took place about that time. The explorer Lesseps mentions nine Japanese whose ships were wrecked at the Aleutian Islands in 1788 and whom he brought to Kamchatka.[2]

THE UPRISING OF THE KAMCHADAL

THE CAUSES OF REVOLTS

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The causes of revolts of the Kamchadal were the cruelty, violence, greediness with reference to fur-skins, and the licentiousness of the Cossack chiefs and soldiers on the peninsula. On the other hand frequent mutinies of Cossacks against their chiefs and the incessant feuds between the chiefs and their parties could not inspire respect from the oppressed natives. Numerous local revolts had taken place from the very beginning of the occupation of the country by the Cossacks. Rebels and victors were equally merciless in their encounters. A general uprising of the Kamchadal which had been fomenting for a long time broke out in 1731. The Kamchadal were ready to rise before that date but did not dare to do so.

In 1729 Kamchatka was visited by the first scientific expedition of Bering and his companions who had armed crews. The ship *Gabriel*, with a crew of one hundred men belonging to the military expedition of the Cossack chief, Afanassy Shestakoff, remained in Nishne-Kamchatsk until July 1731. According to the original plan of Shestakoff's military expedition, the *Gabriel*, after leaving Okhotsk, was to visit Kamchatka and to proceed from there to the mouth of the Alutor River, where the commander of the expedition, Shestakoff, expected to arrive by land from the shore of the Okhotsk Sea, in order to subdue the Alutor Koryak; from there it was intended that the ship should sail to the mouth of the Anadyr River, exploring the shores on the way, and continue up the river to the fortification at Anadyrsk, which Shestakoff intended to reach by land. But Shestakoff's party was defeated and he himself killed by the Koryak after he had crossed the Paren River. When the news of Shestakoff's death arrived, the *Gabriel* remained in Kamchatka, awaiting further orders. In June 1731 she was ordered to proceed to the Anadyr and to enter the service of Pavlutsky, Shestakoff's lieutenant.

As soon as the *Gabriel* had weighed anchor and gained the open sea, the Kamchadal attacked the fortress Nishne-Kamchatsk and took possession of it. Presently a detachment was despatched to take Verkhne-Kamchatsk and Bol-

[1] W. W. Barthold, *Die geographische und historische Erforschung des Orients mit besonderer Berücksichtigung der Russischen Arbeiten*, Leipzig, 1913, p. 130.

[2] M. de Lesseps, *Travels in Kamchatka*, English Translation from French, vol. 1, London, p. 206.

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sheretsk, and everywhere the Russians were slain. It so happened, however, that the *Gabriel* unexpectedly returned on account of an impending storm, not being prepared for a sea-voyage; and besides the crew were not eager to go to Anadyr. The sudden return of the *Gabriel* saved the Russians of the Peninsula. With the assistance of the sailors, Verkhne-Kamchatsk and Bolsheretsk were successfully held; Nishne-Kamchatsk was recaptured and the revolt was suppressed.

When the news of the revolt and its suppression reached Yakutsk the Administration resolved to send a commission to Kamchatka to investigate the cause of the uprising and the revolts of the Cossacks against their chiefs. At the head of the commission were Majors Mekhlin and Pavlutzky, former lieutenants of Shestakoff. The investigation lasted from 1733 to 1739. Sentences of death were passed by the commissioners on several Kamchadal chiefs and other instigators of the uprising, as well as on Cossacks convicted of criminal actions. Among the Russians executed was the Cossack officer Stinnikov, who in 1729 ordered the killing of the Japanese and robbed their ship, which was carried by the winds to the southern shores of Kamchatka.

SOME MENTAL TRAITS OF THE OLD KAMCHADAL

157 761

The old Kamchadal were proud, independent, inclined to wrath; their passions were easily aroused; they took offense readily and tried to avenge themselves by any possible means. They had no fear of death and could not be frightened. In order to demonstrate the psychology of the old Kamchadal some historical instances are cited of the relations between the Russians and Kamchadal before the final pacification of the latter.

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In the winter of 1712 the Chief Antzyferoff with 25 Cossacks endeavored to collect tribute from the Avacha Kamchadal near where the fortress of Petropavlovsk was subsequently established. The Avacha Kamchadal were informed of the imminent arrival of the collectors. They built a solid blockhouse on posts with secretly lifting doors.[1] The Russians were met with simulated pleasure. Amidst mutual professions of friendship the transactions began, the Kamchadal readily surrendering a number of their principal men as hostages for their good behavior. At night they retired with the Cossacks to the pile-dwelling for sleep. But the natives planned to burn the building in the night and with it all the inmates. Their own men, however, were to escape through a secret passageway. But after the pile-dwelling was fired, they learned to their horror that their hostages had been chained by the Cossacks so that escape was impossible. The hostages, however, pleaded with their kinsmen outside to let the holocaust go on as, by perishing themselves, they could secure the destruction of the enemy, and so all in the building perished together.

669 761

Among the Kamchadal leaders of the revolt was the chief of Yelovka River, a tributary of the Kamchatka River, Tighil by name. When Nishne-Kamchatsk

[1] The old Kamchadal usually used such dwellings on platforms raised on piles as summer houses and also as storehouses.

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669 761 was taken by the Russians, Tighil escaped to his fortified settlement in the mountains of Yelovka. Being pursued and overtaken by the Russians, he slaughtered his wives, children, kinsmen and dogs and killed himself.

One of the chiefs, senteneed to death as an instigator of the uprising, laughingly complained before the execution that he had the ill-luck to be hanged the last.

157 177 181 The present Kamchadal, however, have completely changed their psychology. They have a pitiful and humble appearance, and carry out each and every order of the Cossacks and the Russians in general. Evidently the process of Russianization, combined with two centuries of oppression by the Russian authorities, has brought about this change in the primitive character of the Kamchadal. This change, however, did not take place suddenly, but the tense energy of the people displayed in the general uprising was broken, never to recover. They became pacified.

THE YASSAK OR FUR TRIBUTE

651 R. 177.65 The Kamchadal rebellions were chiefly caused by the extortionate demands made by the Cossacks and officials for furs and services for themselves. According to Krasheninnikoff[1] the Empress Elizabeth, after the general rebellion was crushed, issued an order limiting the yassak to one skin to a hunter of what ever animal he could bring; other historians of Siberia state it differently. The main factor attracting the Russians to Siberia in the early period of settlement was its wealth in furs. For one time furs were an important financial item in the budget of the Russian Empire; in the beginning of the seventeenth century the Treasury monopolized the fur trade. Czar Boris Godunoff decreed that the hunters and fur-traders deposit their merchandise in the Treasury for a fixed remuneration. The accumulated furs were placed in the care of a special department in Moscow, which disposed of them through its agents in Turkey, Persia, Bokhara and later in China. China in time became the largest and most profitable consumer of Siberian furs, for in exchange for its furs the Treasury would import from China gold and silver with which the Moscowite Empire paid for its wars. The China trade continued to be a Government monopoly until 1762. In that year Empress Catherine II abolished the official caravans to Peking, leaving the trade, which was still based chiefly on furs, in the hands of private merchants. The free fur trade had a stimulating effect on the development of commercial relations between Siberia, European Russia and the neighboring countries. The Treasury on the other hand no longer insisted that the tribute of Siberia be paid in furs exclusively. They were now free to pay their tribute in money, the amount being approximately estimated according to the value of the furs. Thus the field for official abuses was reduced, and the attitude of the natives toward the Russians began to improve.

Attempts to subject the Kamchadal coincides with the period of the Government monopoly in furs, when fur tribute was the cause for which thousands of men were tortured and killed whenever they refused or were not able to satisfy the rapaciousness of the foreign invaders. The situation of the Kamchadal was

[1] Krasheninnikoff, part II, p. 287.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

651 R. 177.65

particularly tragic, as the sable, for whose fur the Russian demand was greatest, was an animal which inhabited Kamchatka and not the territories to the north of it.

The question as to how tribute was to be levied was later put on a definite basis by the so-called First Tribute (Yassak) Commission of 1762–1766. The reform introduced by the commission was based on the following principles: (1) The tribute is to be paid by a representative for the clan or group; the further apportionment of the tribute among the individual hunters is left to the natives themselves. (2) The representative of the group is to deliver the tribute in person to the administrative center; collectors are abolished. (3) Subject to the tribute are native men from sixteen to sixty years of age, who are to be called "workers" or "tax souls." (4) Payment may be made in furs or in money, the amount being calculated in money for each person, and varying in the case of fur payments according to locality, the nature of the animals and the current valuation of the latter. These principles, with some additions and a general lowering of the amount of tribute to be paid, were accepted by the Second Tribute Commission of 1828–1835. The age of workers was limited to men from eighteen to fifty. The number of workers of every clan was fixed by the census. The last census for this purpose was taken in 1859.

The fur-tribute, however, continued to be levied and to serve as a way to abuses for officials until the February revolution of 1917, when the Provisional Government under Kerensky abolished altogether this form of taxation of the Siberian natives.[1]

[1] The author contributed to the decree by his articles in the press on the Yassak question.

S. Jochelson A-3 (1910-11) 1928 Kamchadal

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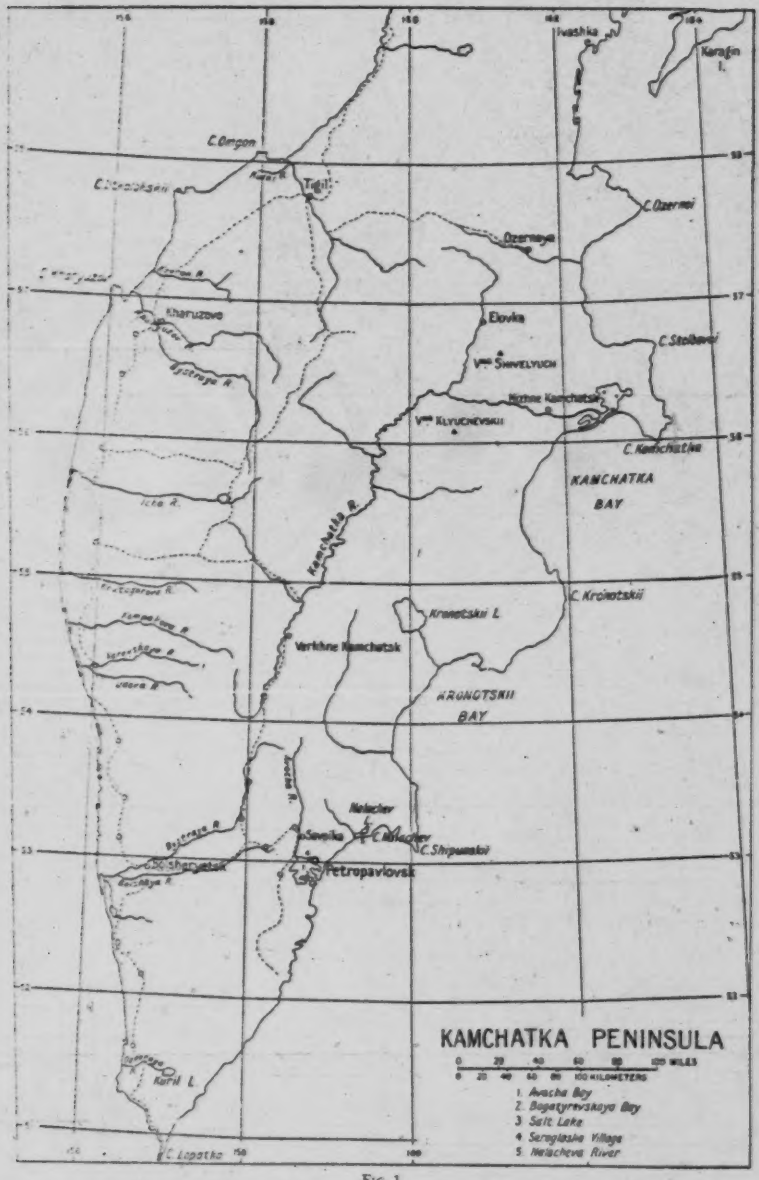

FIG. 1

5: Jochelson A-5 (1910-11) 1928 Kamchadal

CHAPTER III

THE COUNTRY AND SOMATOLOGY OF THE KAMCHADAL

GEOLOGICAL PAST OF KAMCHATKA

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Professor Obruchev[1] says that at the end of the Miocene Epoch the western shore of Kamchatka was sinking, and Professor Bogdanovich[2] supposes that during the Pliocene Epoch a considerable part of the present western and eastern shores of the peninsula were still covered with water. The beginning of the Quaternary, says Obruchev, evidently formed a continental phase which set in after the sinking phase of the Mio-Pliocene Epochs; the land in Siberia reached its maximum extension; the Bering Strait did not exist as yet, and the Chukchee Peninsula was connected with Alaska, and therefore the northeast of Siberia must have had a milder climate than at present. But all these are geological periods which preceded the appearance of man.

The Pleistocene Epoch, which is associated with the existence of man, may be proved in the valley of the Kamchatka River, according to Bogdanovich, by the frequent occurrence of remains of the mammoth and the *Bison priscus*. But nothing is said about the remains of man. In many places of Siberia man was contemporaneous with the mammoth, but there is a question whether the same was true in Kamchatka. About the end of the Pleistocene Epoch, says Bogdanovich, there was an extensive glaciation in many places of Kamchatka.

These climatic changes do not interfere with our theory of the migration to America of the Siberian-Americanoid tribes, including the Kamchadal, in one of the Interglacial Epochs, and of their remigration to northeastern Siberia after it was released from the ice.

But especially on the Kamchatka Peninsula must it be noted that our theoretical considerations are proved by archæological evidence.[3] No artifacts of the palæolithic man were discovered by the author on Kamchatka, and it is possible that no man lived during the old stone age on the Kamchatka Peninsula. It remains, however, for the future to prove or disprove it. In order to clear up my doubts in this respect I communicated with my friend the Russian geologist, Professor I. P. Tolmachoff, now curator of the Department of Invertebrate Palæontology of the Carnegie Museum, Pittsburgh, Pennsylvania. He is well known by his explorations in northeastern Siberia. He writes that it is hardly proper to conclude that man lived in the Kamchatka River valley in the Pleistocene Epoch on the only ground that remains of mammoth and *Bison priscus* were found there. Mammoth and man very often were neighbors but, as it seems, this dependence

[1] W. A. Obruchev, *Geologie von Sibirien*, Berlin, 1926.
[2] Karl Bogdanovich, *Geologische Skizze von Kamtschatka*, Petermann's Mittheilungen, Band 50, 1904, pp. 66, 198, 217.
[3] Waldemar Jochelson, *Archæological Investigations in the Aleutian Islands*, Pub. No. 367, Carnegie Inst. Wash., 1925. *Idem*, *The Ethnological Problems of Bering Sea*, Natural History, Jour. Amer. Mus., Jan.–Feb., 1926, vol. xxvi, No. 1, pp. 90–95.

was not necessarily mutual. Man might follow the mammoth in order to hunt him, but the mammoth had no need of man. Thus the remains of mammoth do not indicate that man lived in the same place, if there is no direct proof of it. However, the presence of the mammoth may postulate to climatic conditions fit for man to live in, and it remains for the future to find remains of the palæolithic man; but for the time being one may be right to hold to the theory of the peopling of Kamchatka in Recent Times, especially since no palæolithic artifacts were discovered in my excavations, and I feel authorized to say that the late peopling of Kamchatka may corroborate the theory of the reemigration of the Siberian Americanoids from America after the last glaciation subsided. To be fair, however, I must add that I had no time to make excavations in the Kamchatka River valley and that no regular excavations were made in the territory of the other Americanoids—the Koryak, Chukchee and Yukaghir.

GEOGRAPHY AND ADMINISTRATIVE DIVISIONS

The country of the Kamchadal—or the part of the Kamchatka Peninsula to the south, from the Amanino village to the west, and Osernaya River to the east—was a part of the Primorskaya Province. In 1909 a new province of Kamchatka was created, which included 6 districts: Okhotsk, Gishiginsk, Anadyrsk, Chukotsky, Commandor Islands and Petropavlovsky. The last district is the territory of the Kamchadal. The city of Petropavlovsk was made the capital of the province and the seat of a newly appointed Governor.

The former Territory of the Kamchadal is inhabited by 8,037 people, of which 3,370 are Russians, 3,555 Kamchadal, 802 immigrated reindeer Koryak and Tungus and 300 Chinese, Koreans and Japanese. There were also 10 Europeans and Americans.[1]

The Kamchadal have become Russianized and only the inhabitants of seven villages (between Amanino and Sopochnoye) of the western coast have preserved their native language—the western dialect of the Kamchadal language—and the inhabitants of the village Sedanka on the Tighil River speak the northern dialect. There were formerly four Kamchadal dialects, and at present even the Kamchadal, who speak two dialects, use more of a Russian-Kamchadal slang than the pure Kamchadal. The younger generation is learning Russian in the schools, and soon the Kamchadal language will be forgotten entirely, as was the case with the dialect of the Kamchatka River and with the southern dialect, which was spoken between the Great River (Bolshaya Reka) and Lopatka Cape. While the northern dialect of the Kamchadal on the Tighil River contains many Koryak words, the southern dialect had an intermixture of Kurilian words. Krasheninnikoff called the southern Kamchadal people Kurilians.

The Kamchdal had been and still remain a genuine fishing tribe. They did not adopt from their Koryak neighbors the reindeer, although they were

[1] According to official data of 1911. During the summer fishing season, Kamchatka's shores have many thousands of temporary dwellers. Russians who operate canneries and saltories bring thousands of laborers. The number of Japanese fishers at the time of my stay in Kamchatka was estimated at more than 10,000. About 250 Japanese schooners were lying near the shores and about ten Japanese steamers were coming from and leaving for Japan. According to the convention concluded after the Russian-Japanese War the Japanese were authorized to fish everywhere in Kamchatka waters except bays and river-mouths, but by bribing the guards they used to fish also in the inner waters.

hunting the wild Kamchatka variety of reindeer.

5: Jochelson A-5 (1910-11) 1928 Kamchada.

hunting the wild Kamchatka variety of reindeer. Fish, different species of salmon, ascend the Kamchatka rivers in such abundance that they amply satisfy the needs in food. The Kamchadal have no time during the short fishing season to dry or smoke all the fish for the winter and the greater part of it is put in holes covered with stones and earth, and during the winter it is consumed in a decayed state by dogs as well as by men.

To a certain degree the Kamchadal of the western coast hunt sea mammals, but, not having skin boats, they do not go out to the sea, but kill those seals, white whales (*Delphinopterus leucas*) and sea lions (seldom) which enter the mouths of rivers in order to catch the ascending fish. Thong nets are put up for that purpose. They also kill seals, spearing and shooting them at their rookeries.

Horned cattle and horses were imported into Kamchatka chiefly from the Okhotsk district, i. e., of the Yakut race. In spite of the fact that they are badly cared for, they became acclimatized in Kamchatka and are a strong race of domestic animals. The Kamchatka horses are small, short necked, wide breasted and with short legs. During the winter they become covered with long thick hair, particularly their legs. Horses are used only in summer—as riding and pack animals. During the winter they are set free and have to graze from under the snow; rarely are they given hay and they therefore turn wild and have to be captured in the summer and trained again for riding.

Cow's milk plays at present an important rôle in the food of the Kamchadal and Russian inhabitants of the country. They use sweet as well as sour milk and pot cheese. Butter is rarely made, although the milk is rich in fat. But the Kamchatka cows give a small quantity of milk, about two or three quarts a day, as a result of scanty feeding in winter and of being kept in cold stalls. The Kamchadal make little hay, as the season for fishing and hay making coincide. One cow may be reckoned for every three inhabitants. The number of cattle may be estimated, according to the writer's census, at about 2,000.

Prior to the advent of the Russian the only domestic animal of the Kamchadal was the driving dog. The Kamchadal dog was regarded as the best and biggest driving dog of Siberia; at present, as a result of unfavorable conditions of life, it has become small in size. The dogs work hard during the long winter, but during the entire summer they are tied up, otherwise calves and colts and sometimes cows and horses are in danger of being torn by them. They are kept far from the village and poorly fed. Owing to the economic, climatic and topographic conditions of the country, the Kamchadal can not dispense with the driving dog, and every family has from eight to fifteen dogs. The number of dogs in 1911 in Kamchatka, according to my census, was more than 5,000. The old Kamchadal sledge for riding astride is no longer in use, the Russians having introduced the type of sledge used all over eastern Siberia. The dogs are harnessed to the sledge, being tied in pairs to a long thong.

There are no domesticated small animals, as goats or sheep and birds, in Kamchatka, as they would be exterminated by the ever hungry dogs, which very often find means to free themselves.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

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The Russian Government repeatedly tried to introduce agriculture and gardening into Kamchatka. For this purpose peasants from Southern Siberia and European Russia were transferred several times to Kamchatka, but all experiments have failed and the imported husbandmen turned to fishing and hunting. Only in the valley of the Kamchatka River, near the village Kluchevskoye, small sowings of barley are still being made, but without any economic importance.

Experiments with gardening appeared to be more successful. Potatoes grow all over Southern Kamchatka where the digging of edible roots had almost ceased. Turnips grow there and the inhabitants of Kluchevskoye also grow cabbage, which heads well.

CLIMATE OF KAMCHATKA

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The following data on the climate of the Kamchatka Peninsula are based on observations made in 1908–1909 by the members of the Meteorological Division of the Riaboushinsky Expedition headed by Dr. V. A. Vlasov.[1]

As climate is one of the most effective nature-agents regulating human life, data concerning three chief regions of the country will be given: the western coast, the eastern coast and the central part, represented chiefly by the valley of the Kamchatka River. The western and the eastern shores represent maritime climates, while the climate of the central part may be characterized as a continental one.

The climate of the western coastline of Kamchatka is more severe than that of the eastern, due to the cold Okhotsk Sea. During the winter cold winds prevail, blowing from the Siberian continent, the region of the great Siberian anticyclone. A late spring and a cold summer characterize the climate of the western coast. On the eastern shore of Kamchatka, under the moderating influence of the Pacific Ocean, frosts in the winter are not so severe. Rain and snowfall are more abundant. However, the cold current arriving from the Bering Strait and the amount of ice which it brings delay the beginning of summer and reduce its temperature.

The climate of the central Kamchatka, confined by its western and eastern mountain ridges, i. e., the valley of the Kamchatka River, distinguishes itself by all the peculiarities of a continental climate, having a cold winter and a comparatively warm summer. In order to demonstrate what has been said of the three climatic regions, mean annual figures for three points are given: for Tighil on the western shore, Petropavlovsk on the eastern shore and Kluchevskoye in the valley of the Kamchatka River.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
Tighil	−20.0	−19.8	−13.6	−2.2	2.4	6.2	11.3	12.1	7.0	−1.0	−7.4	−17.2	−3.5
Petropavlovsk	−10.9	−11.2	− 7.0	−1.6	3.1	7.9	11.8	13.5	9.8	4.2	−1.8	− 6.6	1.0
Kluchevskoye	−16.4	−15.2	−11.3	−1.5	4.6	8.5	12.15	13.1	8.8	−1.4	−7.8	−13.0	−2.0

[1] See V. A. Vlasov, The Kamchatka Expedition of F. P. Riaboushinsky organized by the Imperial Russian Geographical Society, Meteorological Division, vol. 1, part 1, *On the Climate of Kamchatka*; part 2, on *The Temperature of the Waters*. Moscow, 1916 (in Russian). Centigrade thermometers were used.

5: Jochelson A-5 (1910-11) 1926 Kamchadal

132 From this table it is seen that the climate of Tighil is much colder than that of Petropavlovsk and that the climate of Kluchevskoye, by its yearly and some of its monthly mean temperatures, is colder than that of Petropavlovsk, but by its summer temperature (May, June and July) it is warmer than that of Petropavlovsk.

Temperature of the soil. Monthly means, 1909.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Amplitude
Petropavlovsk:													
(1)	−10°5	−10°6	− 7°3	−0°5	8°3	14°5	17°6	15°6	10°9	.....	−4°7	−10°5	28°2
(2)	0.6	0.4	0.3	0.1	4.9	9.3	.....	13.4	10.9	.....	1.9	0.9	13.3
(3)	1.9	1.8	1.4	0.9	3.1	6.5	.....	12.1	10.4	.....	3.6	2.4	11.2
(4)	3.3	3.4	3.0	2.6	1.8	2.7	.....	8.8	7.1	.....	5.3	4.4	5.0
Kluchevskoye:													
(1)	−15.1	−17.3	−12.2	−2.4	10.2	15.6	19.3	15.9	.....	.....	−8.3	−19.3	38.6
(2)	− 9.5	−10.3	− 7.8	−3.1	3.5	9.3	12.8	12.4	.....	.....	−3.0	−10.4	23.2
(3)	− 1.2	− 2.6	− 3.6	−2.2	−0.5	0.0	2.0	4.0	.....	.....	1.7	0.1	6.8
(4)	1.4	1.0	0.7	0.5	0.4	0.4	0.4	0.4	.....	.....	2.7	2.1	2.3
Tighil:													
(1)	−15.3	−20.3	−14.0	−2.8	6.8	13.0	15.7	12.3	8.4	1.7	−6.1	−15.6	36.0
(2)	−11.9	−14.7	−12.0	−3.9	1.6	6.9	10.6	10.7	8.1	2.7	0.8	0.4	25.4
(3)	− 3.1	− 6.2	− 6.9	−4.4	−0.3	0.0	1.1	4.0	5.1	3.0	0.9	0.3	12.0
(4)	0.4	0.0	− 0.3	−0.9	−0.6	−0.3	−0.2	−0.2	0.0	0.3	0.3	0.2	1.2

(1) means on the surface; (2) means 0.25 meter deep; (3) means 1.0 meter deep; (4) means 2.0 meter deep.

This table is compiled from the numerous data on this subject by Vlasov, in order to show what time of the year may be regarded as the most favorable for making excavations in Kamchatka. In Petropavlovsk from May to September inclusive; in Kluchevskoye from July to September; in Tighil in August and September, and even in these two months we meet the freezing point at the depth of two meters. My own experience in that region gave still less favorable results. While digging on June 11 on the bank of Kulki River, a tributary of Tighil River, not far from the village Tighil, I met frozen soil at the depth of one foot and down. According to Vlasov only at the depth of more than 1 meter (3.28 feet) is the soil in Tighil frozen in that month.

SOMATOLOGY

144 177 The present Kamchadal have become mixed with Russian settlers and many have lost their former Koryak-like appearance, even in places where officially no Russians are recorded. The same may be said of the inhabitants of the southern villages, Yavino and Golyghino, who in former times might have been physically influenced by the Kurilians (i. e., the Northern Ainos). The Kurilians had intercourse with the Southern Kamchadal, and some Kurilians had settlements on the southern extremity of the Kamchatka Peninsula.

141 The measurements of Kamchadal taken by Mrs. Jochelson show that the Russian metisation influenced very little the physical character of the Kamchadal. 158 men and 170 women were measured. The following table gives some of the measurements and indices.

141

	Men		Women	
	Average	Stand. dev.	Average	Stand. dev.
Stature	1,567 mm.	5.4	1,495 mm.	4.6
Length of head	186 mm.	6.8	183 mm.	5.7
Width of head	149 mm.	5.7	144 mm.	4.8
Cephalic index	78.9	2.9	78.5	2.7
Width of face	144 mm.	5.7	137 mm.	4.3
Cephalic facial index	90.5	3.3	94.9	3.0

141 764 172 The Kamchadal, prior to embracing Christianity, threw away their dead to be devoured by dogs, and therefore no skeletal remains were found while excavating prehistoric sites. Only in one pit on the mouth of the River Kavran were prehistoric human bones discovered, and among them were two skulls in good condition for measurement.[1] One of the skulls seemed to be that of a woman, the other of a man. The length of skulls was 177 mm. and 188 mm., the width 136 mm. and 143 mm. and consequently the indices 76.9 mm. and 77.9 mm. According to Broca 2 units may be added to the cephalic index of skulls to obtain the cephalic of the living. Adding 2 units to 76.9 and 77.9 mm. we have 78.9 mm. and 79.9 mm., figures nearly equal to averages of the cephalic index of the present-day Kamchadal.

Plate 1 shows photographs of Kamchadal men, women and young girls. Plate 2, figure 1, represents elders of some villages of the western shore of Kamchatka.

SANITARY CONDITIONS AMONG THE KAMCHADAL

164 177 836 732 The Russian conquerors have exercised a disintegrating influence on the family life of the Kamchadal. Among the Kamchadal, unchastity has been more or less common in the case of girls before marriage and of women after marriage. The Russians made liberal use of this custom and in this manner syphilis brought by them was widespread among the Kamchadal. This contagious illness resulted in different inherited diseases. In twenty-six villages of the western coast of Kamchatka, out of a population numbering 2,500, 250 people (i.e., 10 per cent) were, according to my census in 1911, cripples (blind, deaf-mute, humpbacked, lame persons and so forth); particularly were there many blind people, an average of 1 per cent, and half of the population was suffering from eye diseases. Plate 2, figure 2, shows a photograph of 11 blind men and women of the village Kharyusovo, which has 200 inhabitants; i. e., 5.5 per cent of the population are blind.

164 177 These observations refer to the year 1911 and it would be fair to relate observations of later years.

Dr. Shirokogoroff,[2] basing his statement on a recent (1919–1920) medico-statistical survey by Dr. Puxov who put his material at his disposal, says that some

[1] One skull was discovered on the Kuril Lake (see p. 62), but it was not in good condition for measurements.
[2] S. Shirokogoroff, *Northern Tungus Migrations in the Far-East*, The Journal, North China Branch, Royal Asiatic Society, vol. LVII, 1926, p. 174.

groups in Kamchatka after being exposed to syphilis, alcoholism, tuberculosis and other consequences of Russian influence, show a marked increase over the former number. But these general observations are not corroborated by statistical figures.

The well-known investigator of Siberia, Patkanoff,[1] has shown that the groups which had adopted a higher system of economical organization (cattle breeding, agriculture, etc.) show a marked increase in population. But these groups do not include the Kamchadal. On the other hand the latest investigators of Kamchatka, the Swedish traveler Bergman[2] and the Russian Gapanovich,[3] attest the same state of affairs as pictured by the author.[1] Only the infusion of fresh blood may save the Kamchadal from extinction. And the Kamchadal are conscious of it. I remember that some Russian adventurers coming from Vladivostok after the Russian-Japanese War were welcomed and adopted by the villagers of the western coast of Kamchatka, and the hunting rights of their territory were extended to them, provided they settle there.

[1] S. A. Patkanoff, *On the Increase of the non-Russian Population in Siberia*, published by the Imper. Russian Academy of Sciences, St. Petersburg, 1911 (in Russian).

[2] Sten Bergman, *Vulcane, Bären und Nomaden—Reisen und Erlebnisse im wilden Kamtschatka*, Stuttgart, 1926, Chapter: "Durch sterbende Dörfer längs der Küste des Ochotskischen Meeres," pp. 177–190. German translation from the Swedish.

[3] I. I. Gapanovich, *The Native Population of Kamchatka*, North Asia, Jour. Social Science, Moscow, 1925, No. 5, pp. 40–63 (in Russian).

1. [i.e., a decline in population due to syphilis, etc. --Analyst]

CHAPTER V

METALS IN THE PREHISTORIC KAMCHATKA

In the beginning of the seventeenth century the Japanese Government prohibited all navigation beyond its home waters, and before the Russians conquered Kamchatka the Kamchadal were not acquainted with the use of metals. However, there is no doubt that some iron instruments and other Japanese goods had reached Kamchatka through the Kurilians, even before the Russian invasion. Mr. Torii says that the Japanese never traded directly with Kamchatka, as contended by Bogoras.[1] The Japanese, according to Torii, exchanged their goods with the Ainos of Yezo. The latter sold them to their Kurilian kin at the regular fairs on the Island Rasava, and the Kurilians delivered them to the Kamchadal and the Kamchadal brought them to the Koryak and Chukchee. Thus the Kamchadal got from the Kurilians swords, needles, iron pans, cotton stuff, dresses made of bark fiber, armors, plumb and silver earrings, belts with silver buckles, in exchange for fur-skins, before the Russians introduced metallic objects to them. In the excavations in many pits on the shores of the Kuril Lake, I found brass coins of the eleventh century, according to the decision of Professor Koganei, to whom I showed the coins. As the coins were only of one period we may draw the conclusion that at that period the Japanese trade with Kamchatka, through the Aino-Kurilian intermediary, was quite extensive.[2] The old Japanese coins had a hole in the center and it might be that Kamchadal women wore them as ornaments.

However, these trivial borrowings from the Japanese culture were quite insignificant and scanty and the real transition from the neolithic period to a metallic stage had taken place under the influence of the Russians, who brought to Kamchatka iron, copper, bronze and silver instruments, vessels and ornaments.

It was not so in central and western Siberia. There the Russians found old seats of metallic production. As the Russian invaders were chiefly warriors and not artisans they had to have recourse in their needs to native metal workers and iron smelters.

METALS IN SIBERIA

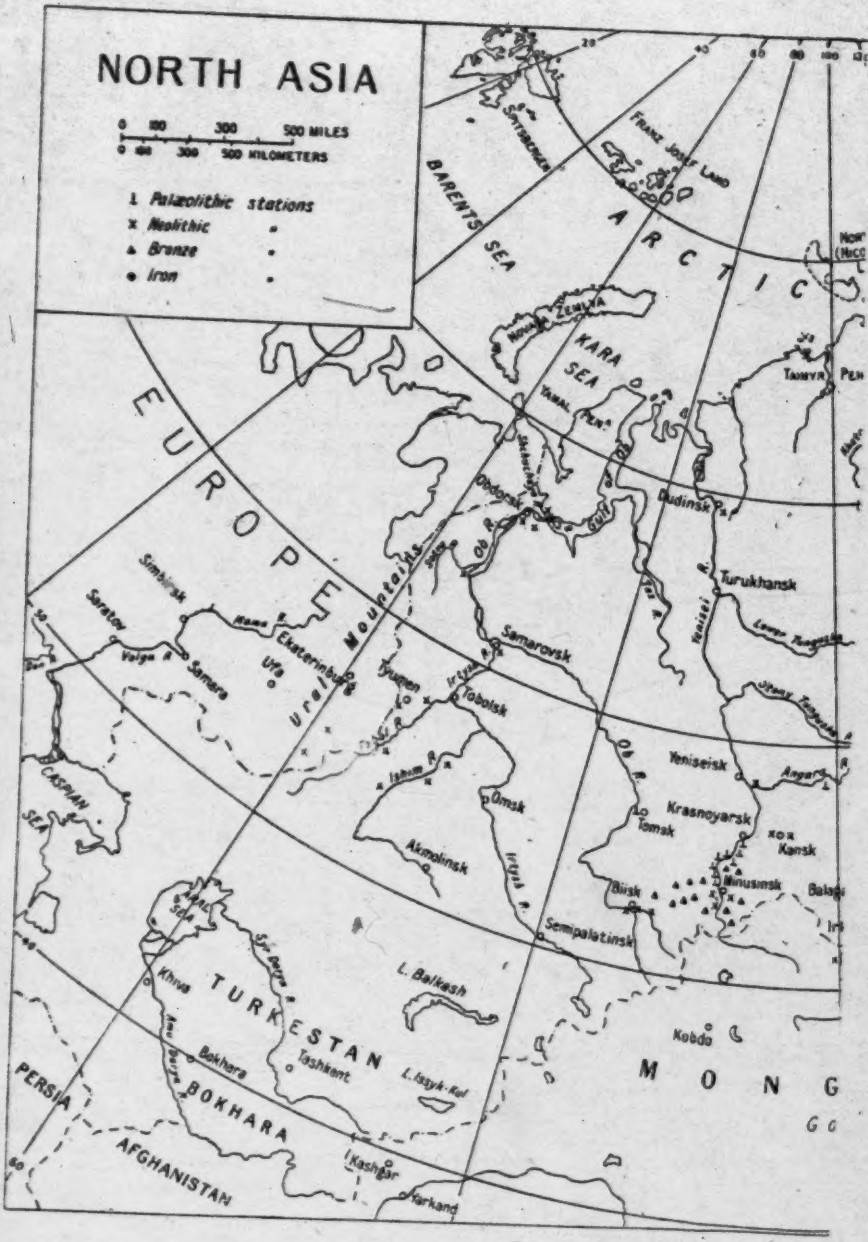
Siberia, as we have said, was acquainted with the use and manufacture of metallic objects, reduction of metals from their ores and making alloys before the Russian conquest. But the historical development of metallurgy in some places of Siberia was different from that of Europe.

[1] See Waldemar Bogoras, *The Chukchee*, p. 54.

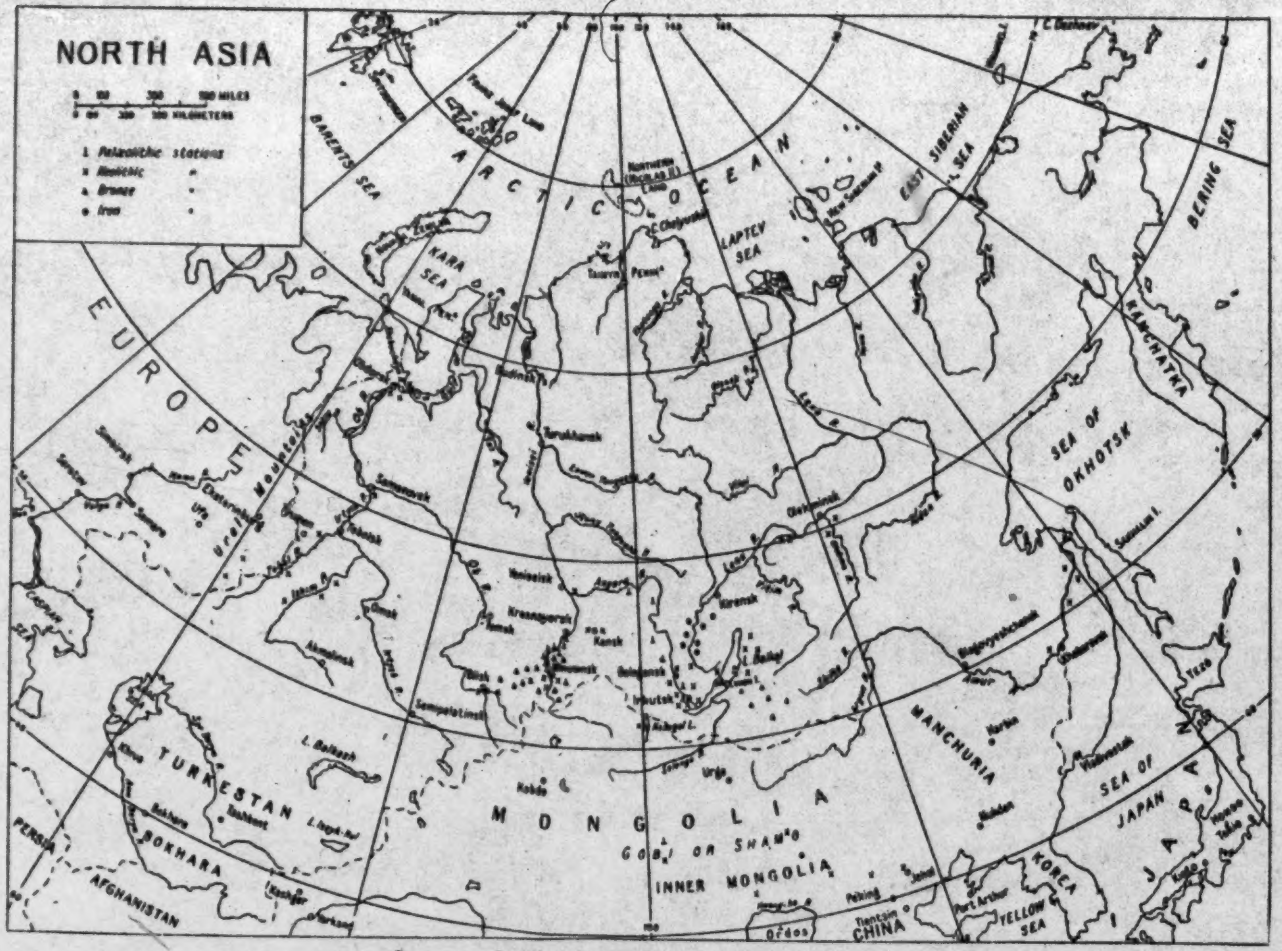
[2] According to Krasheninnikoff (vol. II, p. 49, in Russian) the Kamchadal called a needle "shish" and the Japanese as procurers of needles "shishamas."

[Pp. 22-36 have not been included in the file --Analyst]

5: Jochelson A-5 (1910-11) 1928 Kamchadal (facing P. 41)



DISTRIBUTION OF PALEOLITHIC, N[illegible]



Distribution of Palæolithic, Neolithic, Bronze and Iron Stations in Siberia

Fig. 41 [Facing p. 41]

Kamchadal 1928 (1910-1) A-5 St Jochelson

(Facing P. 41)

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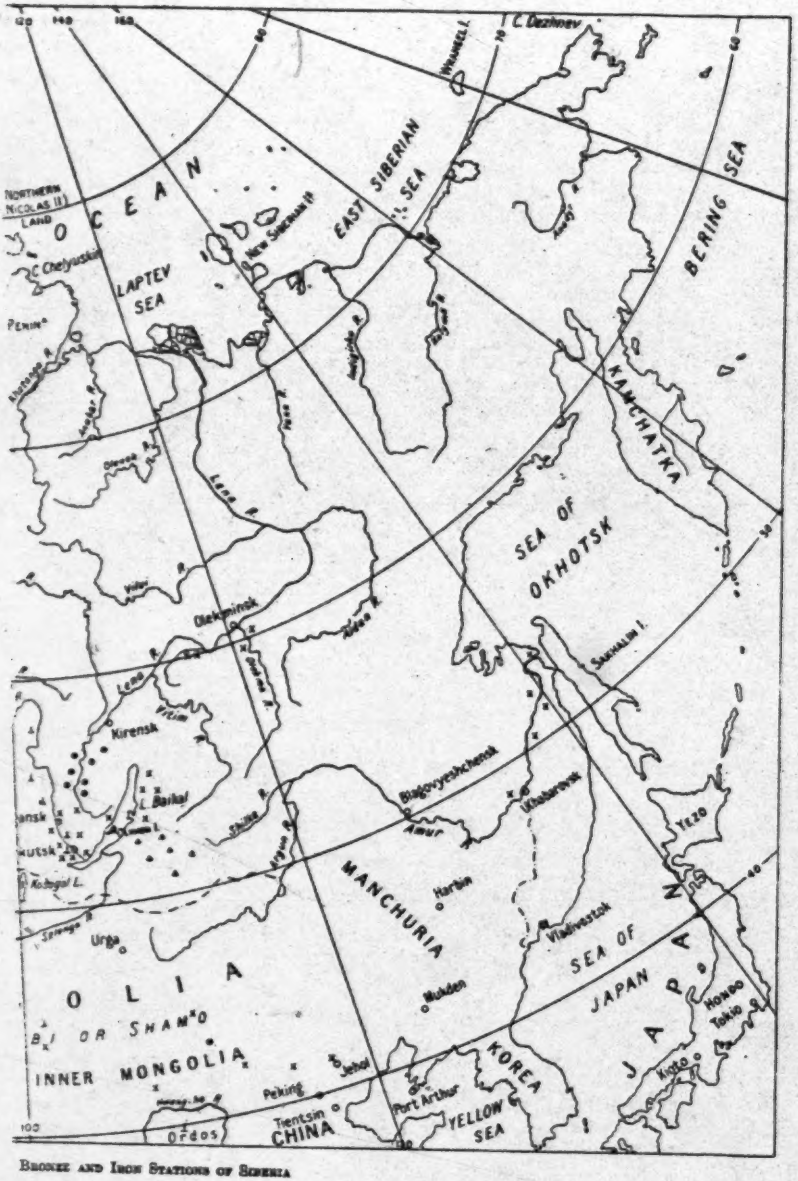


Bronze and Iron Stations of Siberia

CHAPTER VI

ARCHÆOLOGICAL REMAINS FROM THE KAMCHATKA EXCAVATIONS

SOURCE MATERIAL FOR STONE IMPLEMENTS

324 The following is a list of minerals of which the Kamchadal manufactured their stone implements and weapons. The minerals are given in the order of their diminishing hardness:

1 Flint
2 Hornstone schist
3 Quartz schist
4 Quartzite
5 Jasper (variety of quarts)
6 Chalcedony (agate)
7 Andesite
8 Obsidian, andesitic
9 Augite, andesitic
10 Porphyrite
11 Sandstone
12 Quartz slate
13 Marble
14 Slate
15 Red ocher
16 Volcanic tuff
17 White clay

171 While on the Aleutian Islands[1] no flint implements were found, a considerable
324 number of arrow heads and other implements excavated by the author in Kamchatka were made of flint, according to the determination of a mineralogist, Professor A. G. Titov of the University of Moscow. The Aleut used andesite, instead of flint, most frequently for stone implements; the Kamchadal very seldom used this material, preferring the massive varieties of quarts and, partly, obsidian.

Soapstone, of which the Eskimo manufacture their lamps, is not met in Kamchatka and the Kamchadal use harder minerals for lamps, as will be seen later.

LOCALITIES WHERE EXCAVATIONS WERE MADE

172 The present writer made excavations in the following places:

(1) On the shore of Salt Lake on the isthmus in the Avacha Bay, August 19, 1910.
(2) In the Bogatyrevskaya Bay, above Salt Lake, in the forest, August 20, 1910.
(3) Cup-like holes were excavated not far from Salt Lake in afternoon of the same day.
(4) On the slope of the hill on the northeastern side of the Bogatyrevskaya Bay, August 21, 1910.
(5) In the village Syeroglaska, 10 miles from Petropavlovsk, August 25, 1910.
(6) In the village Savoiko, August 29–30, 1910. Savoiko is located on the left bank of the Avacha River, 16 miles from its mouth. Formerly it was called Stary Ostrog and renamed Savoiko after the Governor of Kamchatka (1850–1855), the senior captain and later admiral, V. S. Savoiko.

For numbers 1 to 6, see map of the Avacha Bay (p. 42).

(7) On the bank of the Nalacheva River, September 19.
(8) On the shores of the Nalacheva Lake, September 20 to 24, 1910.
(9) On the Nalacheva Cape, September 26–30, 1910.
(10) Ancient site on the mouth of Kulki River, emptying itself into the Tighil River, 4.6 miles from its mouth, June 10, 1911.
(11) Ancient site on the mouth of Kavran River, June 27 to July 6, 1911.
(12) On the bank of Osernaya River, 2 miles from Kuril Lake, August 6, 1911.
(13) On the Siwusk Cape in Lake Kuril from August 9 to August 14, 1911.

[1] W. Jochelson, *Archæological Investigations in the Aleutian Islands*, p. 96.

[pp. 38-40 have not been included in the file -- Analyst]

5: Jochelson A-5 (1910-11) 1928 Kamchadal

172 Of the above localities, Numbers 1 to 12 yielded the following sites:
262

SITE 1

On a hill above Salt Lake there were several pits, which could not be noticed at first sight as they were covered with an abundant overgrowth of the shelamainik (*Filipendula kamtschatica* Max.) and horse-tails (*Equisetum heleocharis* Ehrh.) 6 feet high. The staple food of the old Kamchadal fishers consisted of different salmon species, the bones of which in decaying formed an excellent fertiliser for the soil. In my work on the Aleutian archæology I pointed out that no bones of salmon were found in excavations of ancient village sites on the Aleutian Islands, contrary to the statements of Dr. Dall for the Aleutian Islands and Professor Emile Rivière, cited by Professor MacCurdy, concerning finds in a cave near

1. Salt Lake.
2. Bogatyrevskaya Bay.
3. Isthmus above the Salt Lake.
4. Slope of hill on the northeastern side of Bogatyrevskaya Bay.

2

Menton, France.[1] In his *Human Origin*, Professor MacCurdy[2] cites Mr. Abbo as having found on a skeleton excavated in Verneau, France, perforated salmon vertebræ, evidently worn as ornaments. It would be interesting to determine whether the vertebræ were really of salmon, and not of some other species of fish. As I have stated, the soft bones of *Salmonoidea*, which ascend rivers and fresh-water lakes for spawning, decay rapidly, falling to pieces in 2 or 3 years.

Professor R. Torii[3] referring to remains of food found in his archæological excavations in Manchuria tells of fish bones, the species of which could not be determined because they were only a heap of powder. These were undoubtedly salmon bones.

[1] Waldemar Jochelson, *Archæological Investigations in Aleutian Islands*, p. 138; W. H. Dall, *On Succession in the Shell Heaps of the Aleutian Islands*, Contributions to North American Ethnology, vol. 1, Washington, 1877, pp. 41-91; G. G. MacCurdy, *The Field of Paleolithic Art*, American Anthropologist, vol. 26, No. 1, Jan.-Mar., 1924, p. 41.

[2] George Grant MacCurdy, *Human Origins*, vol. 1, p. 362.

[3] R. Torii, *Populations Préhistoriques de la Mandchourie Méridionale*, Jour. College of Science, Tokyo Imperial University, 1913-1915, vol. XXXVI, Art. 6, p. 48.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

172 As it was not an easy piece of work to cut away the heavy stalks of the coarse vegetation, we excavated only one pit, in which but few specimens were found. The hill was 9 feet high over the lake. The pit, after the vegetation was cleared, was 5 feet deep. Then followed a 3-foot layer of dark mold and a layer of yellow clay without any trace of cultural remains. No unperishable remains of building material were found. Specimens found in the mold layer were:

(1) A piece of rude pottery (2157).[1]
(2) A stone implement, not finished (2158).
(3) A stone hammer (2159).

SITE 2

There were 4 pits over the lake. The layer of mold was very thin and yielded only two specimens:

(1) A fragment of a stone lamp (2160), very primitive.
(2) An obsidian arrow point, not finished (2161).

SITE 3

Not far from the lake, right over the sea, about 3 feet high were many circular shallow pits on the flat gravel in which no cultural remains were found. My Kamchadal laborers could not explain the origin of these pits. They are probably traces of round tents of a military camp of the European allies who landed in Kamchatka during the Crimean war.

SITE 4

There were several pits with remains of burnt wood and stones in the dark soil, to the depth of 3 feet, but no other refuse. A yellow sand formed the base of the pit.

SITE 5

A pit was excavated to the depth of 4.5 feet. A layer of 3 feet contained cultural remains. There were found charcoal, burnt stones, bones of seals and shells of mollusks (*Katharina tunicata* Wood and *Modiola modiolus* L.) and the following specimens:

(1) A flint arrow point (2162).
(2) A polished marble object resembling a labret (2163), but it must be noted that no labrets were used as personal ornamentations by the ancient Kamchadal.
(3) A stone ax.

SITE 6

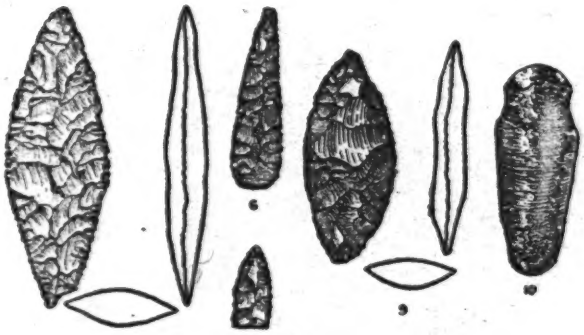
Two pits were excavated near the village Savoiko.

Pit A: The depth before digging was 3 feet 8 inches and a shaft was cut 5 feet 2 inches deep. The layers were as follows:

(1) Yellow sand covered with grass, 1 foot high.
(2) Volcanic ash, 5 inches deep.
(3) Fine gravel, 1 to 2 inches.
(4) Dark-brown sand with roots of plants, 2 feet 7 inches.
(5) Black soil with organic remains, 2 inches.
(6) Brown sand, 1 inch.

[1] The catalogue number is shown in parenthesis.

5: Jochelson A-5 (1910-11) 1928 Kamchadal



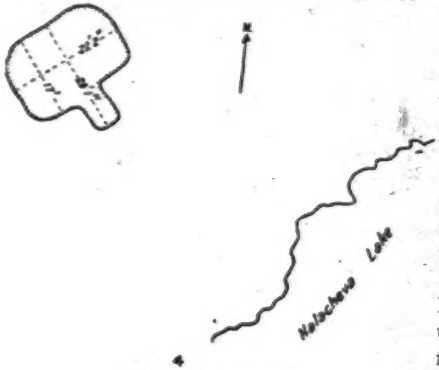
3. Laurel leaf-like blade of dark greyish flint.
6. Arrow blade of green jasper.
7. Arrow flint blade.
9. Blade of black obsidian.
10. Stone pestle of quartz slate.

All of Nalacheva Lake.

Pit B: Length, 24.7 feet; width, 22.2 feet. The entrance was directed to the east. We excavated 6 feet 7 inches deep until a single layer appeared. Separate layers were:

(1) Organic remains and roots of plants, 2 feet.
(2) Gray sand and volcanic ash, 2 feet 6 inches.
(3) Yellow sand, 2 feet 1 inch.

Pits A and B yielded the following finds: 1 stone ax (2165); 1 obsidian arrow or harpoon point (2166); a piece of pottery (2167); a laurel leaf-like blade of dark greyish flint with fine trimming on both sides. Length, 91 mm.; greatest width, 32 mm.; thickness, 11 mm. (see fig. 3, 2168); a stone arrow not finished; and two stone hammers (2170 and 2171).



4
Pit No. 1, Nalacheva Lake.

SITE 7

My party left Petropavlovsk on horseback on September 13 at 12.30 afternoon and reached the village Khalakhtyrka at 6 in the evening. The route lay through a low ridge and by the shore of the Khalakhtyrka Lake. The last 1.3 miles we moved along the Khalakhtyrka River, a most picturesque country. We passed the night in Khalakhtyrka village. A stone celt found while building a

5: Jochelson . A-5 (1910-11) 1928 Kamchadal

172 blockhouse was given to me (2209). We left Khalakhtyrka in the morning of September 14. We, and our laborers, had to walk, as I could get only four pack horses for our freight, and the horses and drivers from Petropavlovsk had to return to that place. When it became dark we put up our tents and stopped for the night, only 1.3 miles from the Nalacheva River.

In the morning of September 15 we left our camp, and about 3 o'clock in the afternoon crossed the river in two small boats. Usually one boat is left on each bank for the use of travelers. You cross the river in the boat, taking a part of your freight with you, and coming back with two boats you carry over the remaining freight and passengers. There are also some planks leaning on trees, by which you can bridge the two boats in order to take over heavy freight or to cross more safely. The river is quite wide and has a strong current. The horses, freed from their pack or riding saddles, are driven into the river and forced to swim across. After crossing the river the travelers have to return both boats to their proper places.

On September 16 we passed the sites on the Nalacheva River and between the river and Nalacheva Lake. September 17 to 19 we excavated two sites on the Nalacheva River, one 6 feet 2 inches deep, the other 4 feet 7 inches deep. In none of them were artifacts found, except burned stones in the center—traces of former hearths.

On the shores of the Nalacheva Lake excavations were made on September 20 to 24, 1910. Traces of pit-dwellings[1] were discovered all around the lake, showing that the place had been densely populated.

Pit No 1 was 3 feet 10 inches before digging (fig. 4). The hearth, 1 foot deep after digging, was opposite the entrance passage. In the corners of the northeastern side burned wood was found instead of posts. On the west, in a hole 2 feet deep, a rotten post, the lower end of which had been partly preserved, was still standing. The entrance passage was 10 inches deep before digging. The pit was covered with the grass of meadow-sweet (*Filipendula kamtschatica* Max.), spear-grass (*Calamagrostis langsdorfii* Trin.) and *Pleurospernum kamtschaticum* Hoffm. of the Umbelliferæ.

The distances between the inner posts were 6 feet and 7 feet 2 inches. The following artifacts were found:

(1) A fragment of an obsidian arrow point, not finished (2194).
(2) A stone arrow point (2194).
(3) A stone arrow point, not finished (2195).
(4) Five fragments of pottery.

5

Pit No. 2 (fig. 5) was 16 by 15 feet. The length of the entrance passage was 8 feet. Before digging the depression was 4 feet, and the pit was excavated to a

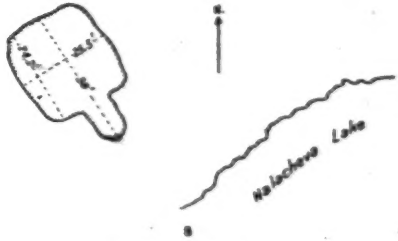
[1] The sketches of the depressions, the outward evidences of ancient underground dwellings, are given in a somewhat irregular form, as they were drawn by the writer in the field. The irregular configuration of the cavities may be explained by the falling in of parts of the earthen walls.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

172 depth of 1.5 feet only. Yellow sand without cultural remains followed. The following artifacts were discovered:

(1) Fig. 6 (2206). An arrow blade of dark green jasper, with a rounded base, well finished, the point being broken off. Length, 55 mm.; greatest width, 15 mm.; greatest thickness, 11 mm.
(2) Fig. 7 (2207). A fragment of a small obsidian point, similar to an Aleut surgical lancet.[1]
(3) A fragment of the lower part of an obsidian arrow point (2208).
(4) A stone celt (2210).
(5) A piece of pumice for polishing stone implements (2211).
(6) Fragments of two clay pots.
(7) In the entrance passage a piece of pottery with an inside ear was found.

In the morning of September 21, 1910, the temperature was 3° C.; in the afternoon snow was falling.



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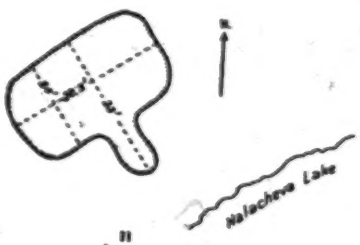
Pit No. 3, Nalacheva Lake.



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Pit No. 4, Nalacheva Lake.

Pit No. 3 was 2 feet 5 inches deep before digging, and was excavated to the depth of 4 feet. The following artifacts were discovered in this pit (fig. 8):

(1) An arrow point of rock crystal (2192).
(2) A fragment of a stone celt (2191).
(3) A stone celt (2205).
(4) A stone arrow point (2197).
(5) An obsidian arrow point in the form of a laurel-leaf, black with red veins. Length, 64 mm.; greatest width, 27.5 mm.; greatest thickness, 9 mm. Illustrated in fig. 9 (2198).
(6) A whetstone for grinding and polishing (2199).
(7) A stone chisel (2200).
(8) Fig. 10 (2201). A polished cylindrical pestle of grayish quartz slate for grinding paints or possibly food, made of edible plants mixed with animal fat or oil. Near both ends of the implement traces of pecking with a hammerstone may be seen, perhaps for making grooves. Length, 62 mm.; greatest diameter, about 23 mm.

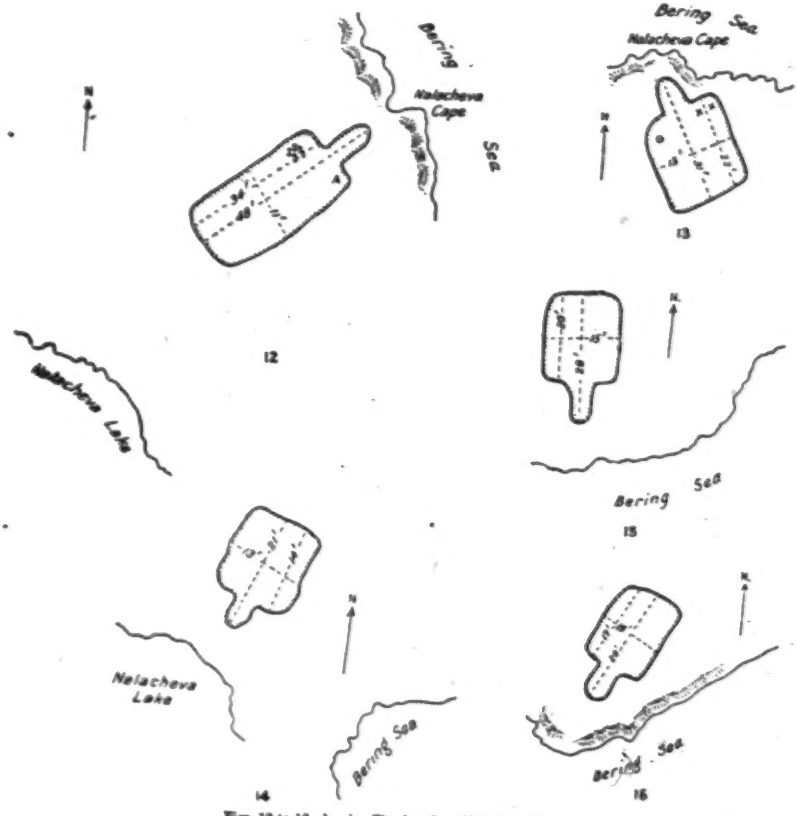
Before digging, Pit No. 4 was 4 feet deep, and it was excavated to the depth of 7.5 feet (fig. 11). Artifacts discovered were:

(1) A stone celt (2202).
(2) A piece of rock crystal with traces of an arrow point (2203) having been manufactured from it.
(3) A small obsidian arrow point (2204).

At Site 9, on the Nalacheva Cape, diggings were made on September 26 to 30, 1910.

[1] W. Jochelson, *Archæological Investigations in the Aleutian Islands*, p. 80, fig. 38.

5: Jochelson A-5 (1910-11) 1928 Kamchadal



Figs. 12 to 16, showing Pits 1 to 5 on Nalacheva Cape.

Pit No. 1 before digging was 2 feet 6 inches deep and was excavated to the depth of 3.5 feet. In the right corner from the entrance there were found hearth stones and on them were some shells of the mollusk *Mytilus edulis* L.; a broken clay pot was also found. The following artifacts were discovered in this pit:

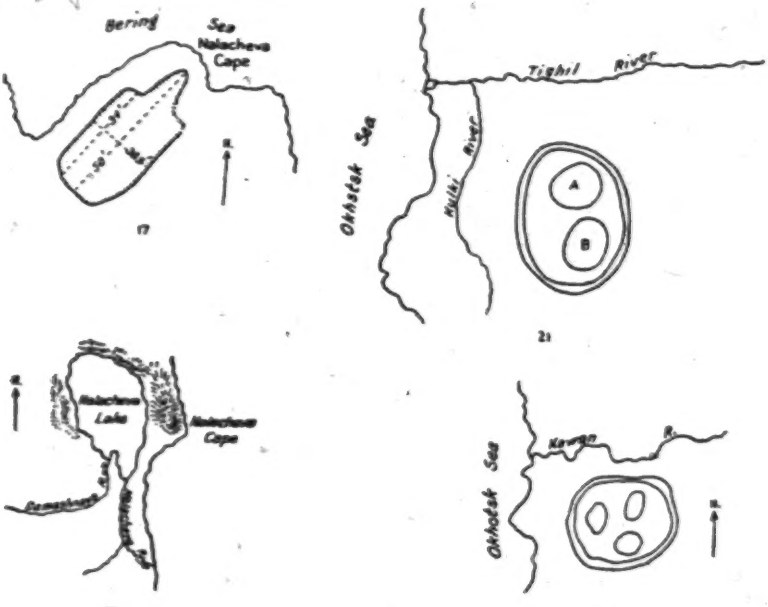
(1) A flat obsidian arrow point (2178).
(2) A fragment of such a point (2179).
(3) A small obsidian arrow point (2180).
(4) A piece of obsidian in process of arrow making (2181).

Before digging, pit No. 2 was 2 feet 4 inches deep and the excavation was carried to the depth of 4 feet. X (fig. 13) shows the place where a complete clay pot with

5: Jochelson A-5 (1910-11) 1928 Kamchadal

172 handles inside was found; O, where fragments of another pot were found. The diameter of the rim of the complete pot was 1 foot 6.25 inches, of the bottom 11 inches, and the height of the pot was 8 inches. The pot was discovered at a depth of 3 feet 4 inches. The pit before digging was covered with *Empetrum nigrum* L., *Epilobium angustifolium* L., bushes of the wild rose (*Rosa acicularis* Lindle), the fern (*Cryptogramme acrostichoides* R. Br.) and other plants, and it took much time to clean the pit before digging. The following stone artifacts were found:

(1) Two rudely made arrow points of quartz (2172).
(2) Four obsidian arrow points.



17. Pit No. 6, Nalocheva Cape.
20. Sketch of Nalocheva Lake and Cape.
21. Sketch of ancient site of Kulki River.
23. Sketch of ancient site of Kavran River.

The depth of Pit No. 4 before digging was 2 feet 4 inches and it was excavated to the depth of 3.5 feet. Only two obsidian arrow points were found (2184, 2185).

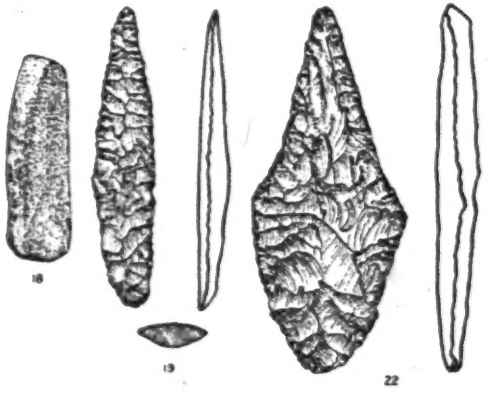
Pit No. 5 before digging was 2 feet 2 inches deep and excavation was done to the depth of 3 feet 8 inches. Artifacts found were:

(1) A stone celt (2187).
(2) An obsidian arrow point, not finished (2188).
(3) A fragment of a thin obsidian arrow point.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

172 The depth of Pit No. 5 before digging was 3.5 feet and it was excavated to a depth of 3.5 feet. The following artifacts were found:

(1) Five fragments of a clay pot, 2 with ears inside (2214).
(2) A broken stone ax.
(3) Three pieces of pumice for polishing stone implements (2216).
(4) Fig. 19 (2222) a-c. A flint blade for an arrow or throwing dart. Judging by the assymetrical curving it is not finished. Length, 90 mm.; greatest width, 19 mm.; greatest thickness, 7 mm.
(5) A fragment of a stone wedge (2225).
(6) A fragment of a stone implement (2224).
(7) Fragments of one clay pot (2239).
(8) Fragments of another clay pot (2240, 2241).



18. Chisel of quarts schist, Nalacheva Cape.
19. Flint blade, Nalacheva Cape.
22. Lance point of flint, Kulki River.

The depth of Pit No. 6 before digging was 3 feet 10 inches and it was excavated to the depth of 4 feet. Artifacts found were:

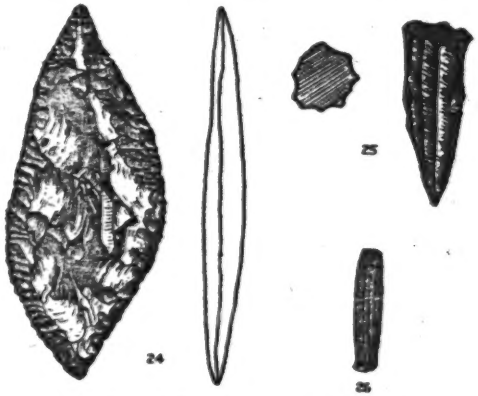
(1) A stone celt (2182).
(2) Fig. 18 (2183). A chisel of greenish gray quarts schist, polished. Length, 62 mm.; greatest width, 20 mm.; width of blade 18 mm.
(3) Three pieces of pumice for polishing stone implements.
(4) A big piece of pumice, with a hole for hanging (2226).
(5) A stone lamp (2228).
(6) Two stone sinkers (2229, 2235).
(7) A stone lamp (2239).
(8) A fragment of a stone ax (2231).
(9) A flat stone sinker (2232).
(10) A fragment of a stone wedge (2233).
(11) Eleven pieces of white clay (2234).

The sketch of map (fig. 20) was drawn by the son of the Governor of Kamchatka, Boris Perfilyev, a naturalist, who accompanied me on my trip to the Nalacheva region. No scale is given.

172 The following specimens, presented by Governor Perfilyev, were found by Mr. Eckermann, a representative of a fishing company, while digging a cellar in Palan.

(1) Ten pottery fragments with traces of impression of basket work (2217).
(2) A pottery fragment with a hole near the rim.
(3) A pottery fragment with an impression of weaving (2219).
(4) An arrow point of rock crystal (2220).
(5) A fragment of a stone implement.

The Kulki River empties into the River Tighil, 4.6 miles from its mouth. The site is located 1,738 feet from the mouth of Kulki on a hill over the right bank of the river. There were traces of an earthen wall which surrounded the site. The length of the hill was 76 feet; the width, 60 feet. Inside the wall were the remains of two pits, A and B, almost circular in form. The length of pit A



24. Knife-like implement of opaque black flint. Kulki.
25. Nucleus of tawny gray flint. Kavran.
26. Flint nucleus with 12 tiny facets. Kavran.

was 36 feet and its width 25 feet; the length of pit B was 25 feet and its width 21 feet. The digging was done on June 10, 1911, and the soil was still frozen from one foot down. The earth had to be thawed out by fire piles before the digging, thus hampering the work. Some specimens were broken while spading the dirt. The following specimens were found:

(1) Fourteen stone arrow points and other implements (2690–2703). The greatest length was 114 mm.; the smallest, 55 mm. One of the weapons (2692) is illustrated in figure 24 a-b. It is a knife-like implement of opaque black flint. As both asymetrical sides are trimmed, it looks rather to be a newly finished blade of a lance. The implement is very thin for its size. Length, 114 mm.; greatest width, 49 mm.; greatest thickness, 11 mm.
(2) Eighteen pottery fragments with ornaments (2704).
(3) Fifteen stone implements (2705–2719). One of these specimens is illustrated in figure 22 (2712) a-b. It is a lance point of black flint. The stem is thicker than the point. Carefully chipped, the edges are steeply trimmed. The stem was evidently intended to be inserted into a

5: Jochelson A-5 (1910-11) 1928 Kamchatka

172 wooden shaft. Length, 110 mm.; greatest width, 47 mm.; smallest width, 10 mm.; thickness of the narrow end, 9 mm.; of the broad end, 8 mm. Fig. 22, b, shows the side view.

(4) A long stone arrow point (2723).
(5) A stone ax (2724).
(6) Three stone arrow points, not finished (2725–2727).
(7) Stone pestles (see site Kavran, 2729–2733).

173 On the right bank of the Kavran River, in 6 minutes' walk from its mouth, a site surrounded by a wall of earth was dug out. Within the wall there were three almost circular pits as shown in figure 23. According to a tradition this was the fortified place of Kulki, a strong man of Koryak origin, who used to cross the central mountain ridge of the peninsula in order to fight the chiefs of the Kamchatka valley. The digging of the site was carried to the depth of 2,247 mm., 172 the frozen soil reaching to the depth of 2,095 mm. The shaft dug represented the following layers:

1027 *mm.*	a layer of turf (A).
1287	clay containing (B) organic remains.
1522	charcoal, implements, organic remains and clay (C).
1797	clay containing very little organic remains (D).
2167	yellow clay (E).
2247	shingle (F).

The excavation of the site was continued from June 22 to July 10 inclusive. As the soil was still frozen it had to be thawed by burning wood, layer after layer. This, however, did not prevent the breaking by the spade of some of the artifacts while digging. Almost all of the artifacts were found in layer C, and very few of them in layers B and D. The fact that artifacts were discovered only at a certain depth bears witness of the antiquity of the site. The following objects were found:

(1) 24 stone arrow points; the largest is 100 mm. long and the smallest 21 mm. (2685–2688). Of these the following are illustrated: figure 30 (2666), a–c, a laurel leaf-like blade of black flint with some defective trimming. Length, 99 mm.; greatest width, 32 mm.; greatest thickness, 12 mm. Figure 36 (2667), a–b, an obsidian blade of a laurel leaf-like shape, nicely trimmed. Length, 48 mm.; greatest width, 17 mm.; thickness, 10 mm. Figure 29 (2668), a–c, an arrow point of black flint, with small facets and symmetrical sides finely trimmed. Length, 60 mm.; greatest width, 16 mm.; greatest thickness, 8 mm. Figure 35 (2685), a small arrow blade of black flint. Length, 21 mm.; greatest width, 10 mm.; greatest thickness, 4 mm.

(2) Fragments of pottery (2689, 2720, 2721).
(3) A stone ax of quartz limestone (2728).
(4) A lance point of tawny gray flint, rudely chipped, evidently not finished. Length, 222 mm.; greatest width, 44 mm.; greatest thickness, 40 mm. See figure 33 (2723).
(5) Five stone pestles (2729–2733) of the sites Kulki and Kavran, used for grinding food of edible plants and roots mixed with meat, fat or animal oil. The largest found in Kavran was 228 mm. long and is illustrated in figure 28 (2733) a–b. Made of quartz slate.
(6) Three fragments of Japanese porcelain cups (2746).
(7) Two pieces of iron (2745).
(8) Shells of mollusks (2747).
(9) 35 fragments of bone arrow heads (2747a).
(10) The bone part of a root digger (2748), in Kamchadal qasqar.
(11) The same as No. 10 (2749).
(12) A bone arch which served as stanchions of an ancient Kamchadal dog sledge, in Kamchadal msan. Illustrated in figure 31 (2750), 4/15 of natural size.
(13) Two bone hooks (2751, 2752). The first hook is illustrated in figure 43, 1/3 natural size; the second in figure 50.
(14) Fragments of bone implements (2753–2756).

5: Jochelson A-5 (1910-11) 1928 Kamchadal

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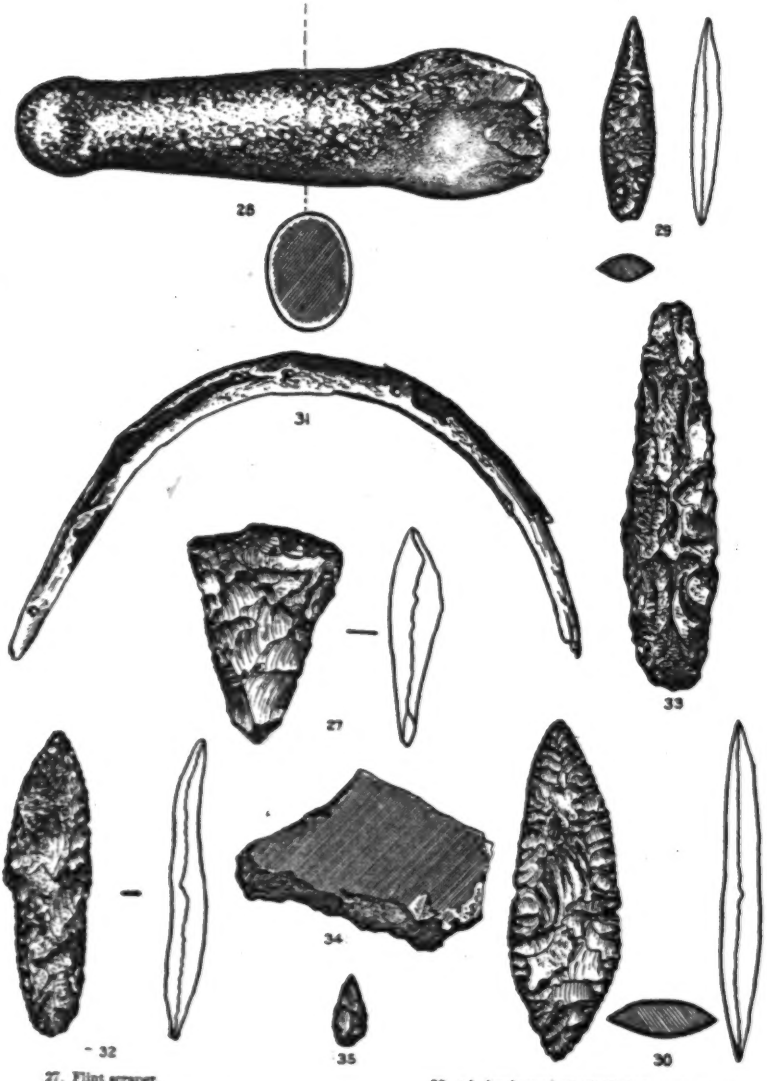

27. Flint scraper.
28. Stone pestle of quartz slate.
29. Arrow point of black flint.
30. Laurel leaf-like blade of black flint.
31. Bone arch of an ancient Kamchadal dog sledge.
32. a-b, implement of silicified black slate.
33. Lance point of tawny gray flint.
34. Whetstone of volcanic tuff.
35. Small arrow blade.

All of Kavran.

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(15) Two bone spades (2757, 2758).
(16) The bottom of a Japanese porcelain cup (2759).
(17) A piece of pumice (2766).
(18) A whetstone (2767), for polishing stone implements, of volcanic tuff. Illustrated in figure 34, 4/9 of natural size.
(19) 27 stone arrow points (2768–2794). Of these specimens the following are illustrated: figure 25 (2768), a nucleus of tawny gray flint from which flakes had been evidently obtained by striking with a hammerstone vertically from above; nine facets; the horizontal plane is assymetrical. Length, 49 mm.; horizontal plane, 21 by 18 mm. Figure 26 (2786), a flint nucleus of a little darker tint than the preceding one, of a cylindrical shape, with 12 tiny facets. Length, 35 mm.; the transverse plane section, 9 by 8 mm. Figure 27 (2775) a–b, a scraper of black flint, nearly triangular, slightly rounded and finely trimmed on the working edge, which has a hollow from one side. The other two sides of the triangle are irregularly trimmed and rudely chipped. The top end might serve as a graver. Greatest length, 62 mm.; greatest width, 45 mm.; greatest thickness, 13 mm. Figure 32 (2772) a-b, an implement of silicified black slate. Evidently a knife for working in wood. The straight stem might be kept as a handle or inserted in a wooden handle. The edge for cutting is somewhat curved. Length, 88 mm.; greatest width, 25 mm.; greatest width of the stem, 10 mm., thickness of the blade, 8 mm.
(20) 17 stone implements (2795–2811). Of these specimens the following are illustrated: Figure 37 (2795), a–b, scraper of black obsidian almost triangular in form, with a rounded working blade and shallow, enlongated, finger-like facets. From one side both edges are retouched, the other side has only one edge retouched. Greatest length, 47 mm.; greatest width, 31 mm.; thickness, 12 mm. Figure 38 (2801) a-b, a woman's tailoring knife, polished from both sides, similar to the Aleut-Eskimo women's knives of the same kind. There were evidently holes on the upper part for fastening to a wooden handle. Greatest length, 93 mm.; greatest width, 30 mm.; thickness, 2.5 mm.
(21) Nine stone implements (2812–2839).
(22) Six bone implements (2821–2826).
(23) Thirteen bone implements (2827–2839).
(24) Nine bone implements (2840–2848).
(25) Five bone implements (2849–2853).
(26) Nine fragments of bone implements (2854–2862).
(27) One bone implement and 12 pottery fragments (2863–2875).
(28) A stone sinker (2864).
(29) Figure 39 (2866), a drill head of quartzite, 2/5 natural size.
(30) A stone sinker (2865).
(31) A stone celt (2867).
(32) Figure 42, a bone spade (2868), 1/3 natural size.
(33) Six pottery fragments (2869).
(34) Four stone pestles (2870–2873).
(35) A bone knife for splitting the willow-herb (*Epilobium angustifolium* L.) (2874). Illustrated in figure 41.
(36) Two bone spoons (2875, 2876).
(37) Eleven stone implements: celts, arrow points and knives (2877–2887), the longer of which was an obsidian knife, length 150 mm.
(38) Figure 40 (2888), a stone for grinding paints, of quartz slate, 4/15 natural size.
(39) An obsidian celt (2890).
(40) A large stone pestle (2891).
(41) Two skulls (2917, 2918).
(42) Three stone lamps (2921–2923).
(43) A piece of a whale's lower jaw (2924).
(44) Two stone pestles (2926, 2927).
(45) A stone sinker (2928).
(46) A whetstone (2929).
(47) A stone sinker (2930).
(48) A large whetstone (2931).
(49) Figure 48 (2932), a stone hammer of volcanic tuff used in the manufacture of stone lamps and grooving stone sinkers, 1/3 natural size.
(50) A whetstone (2933).
(51) A fragment of a stone pestle (2934).
(52) Figure 49 (2935), a quartz pebble used in the game called matka, 2/3 natural size.
(53) Pottery fragments (2937).

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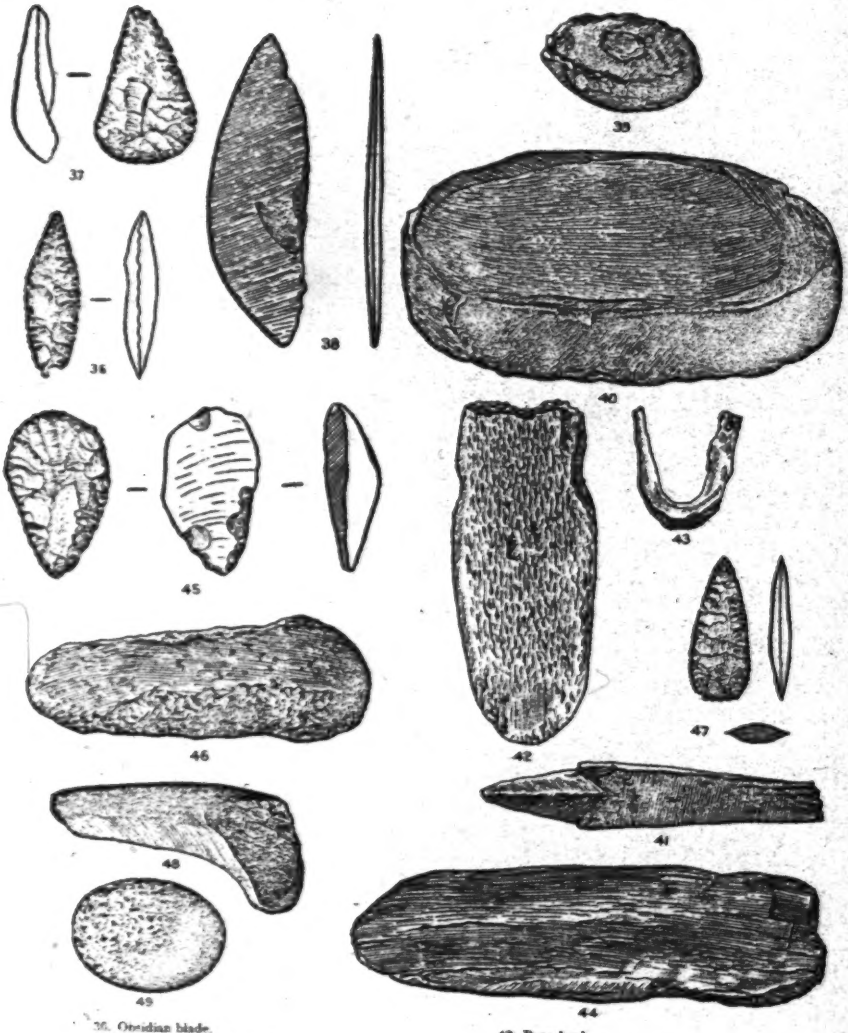

36. Obsidian blade.
37. Scraper of black obsidian.
38. Woman's tailoring knife of slate.
39. Drill head of quartzite.
40. Stone for grinding points of quartz.
41. Bone knife for splitting willow herb.
42. Bone spade.
43. Bone hook.
44. Bone shovel for digging.
45. Obsidian scraper.
46. Stone pestle for grinding food.
47. Obsidian blade.
48. Stone hammer of volcanic tuff.
49. Quartz pebble used in game.

All specimens found at Kayran.

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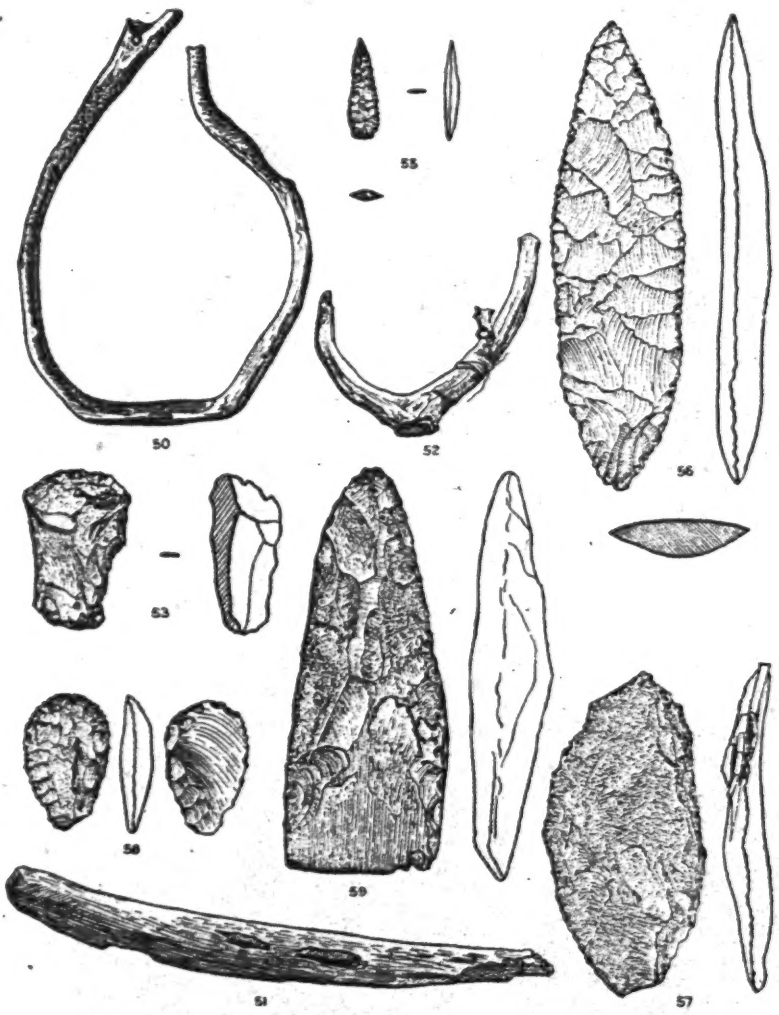

50. Bone hook for hanging fish for drying. Kavran.
51. Fragment of some bone implement, much decayed, possibly a part of a sledge runner. Kavran.
52. Bone hook of reindeer antler, probably used as a root digger. Kavran.
53. Scraper-like implement of quartzite. Kuril Lake.
55. Small arrow blade of brown reddish flint. Kuril Lake.
56. Lance blade or knife of greatly silicified slate. Kuril Lake.
57. Unfinished blade of greatly silicified slate. Kuril Lake.
58. Scraper of gray dark flint. Kuril Lake.
59. Adze of quartz schist, rudely chipped, with a polished blade from both sides. Kuril Lake.

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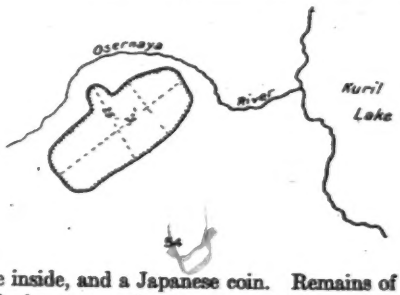
(54) Four ornamented pottery fragments (2940).
(55) Figure 51 (2941), fragment of some bone implement, much decayed, possibly a part of a sledge runner, 2/9 natural size.
(56) Figure 52 (2943), a bone hook of reindeer antler, probably used as a root digger, 1/3 natural size.
(57) Two handles of bone spoons (2944, 2945).
(58) Six fragments of bone implements (2946).
(59) Four fragments of bone implements (2947).
(60) Seven fragments of bone implements (2948).
(61) Four scrapers (2949).

We see from the number of specimens found (about 230), that the excavation of the Kavran site was particularly productive.

The ancient site on the bank of the Osernaya River is 2 miles from the point where it flows out to the sea from the Kuril Lake. There were several depressions of former dwellings, and we excavated the largest of these. The pit before digging was 2 feet deep. Then followed a layer of black earth more than a foot deep, after which the primeval soil consisting of gravel appeared. In the layer of black earth were found traces of a fireplace, two whetstones, two pottery fragments, one of



which had a handle inside, and a Japanese coin. Remains of posts were not discovered. The pit had a rectangular form like the pits on the shores of the Nalacheva Lake. Those of the Kulki and Kavran Rivers had rather a circular form.

Higher in the rocky bank over the described pit was a small depression resembling a pit. We excavated it and found a layer of mold about a foot deep in which were only a fragment of pottery, with an ear inside, and some bones of a bear.

We came to the ancient site on the shore of the Kuril Lake on August 8 and diggings were carried on from August 9 to 14. We left the lake August 16. In order to reach Lake Kuril we had to ascend the Osernaya River, flowing out from the lake into Okhotsk Sea. The river is fifty-five miles long.

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721

The mouth of the river is connected with some historical episodes. During the Russian-Japanese War, in May of 1905, a fleet of Japanese schooners landed there with the intention of taking possession of Kamchatka. The Japanese were volunteers, numbering 150, under the command of the retired Captain Hundzi Naridata. At that time there was no settlement at the mouth of Osernaya River. The Japanese put up a trenched camp, mounted their only cannon and hoisted a Japanese flag. Except the visit to Petropavlovsk by Admiral Togo's squadron,

5: Jochelson A-5 (1910-11) 1928 Kamchada.

175 this was the only attempt to take Kamchatka by force, and it ended very unhappily for the Japanese.

721 When the Japanese were marching along the coast to the village Yavino, its inhabitants fled into the mountains, abandoning their houses, belongings, cattle and dogs. The Japanese finding no one in the village, occupied the Russian houses, hoisted a Japanese flag over the chapel and put up a post with a declaration of the annexation of Kamchatka to Japan. Some days later the Japanese returned to Osernaya taking with them all the cattle, horses and dogs from Yavino.

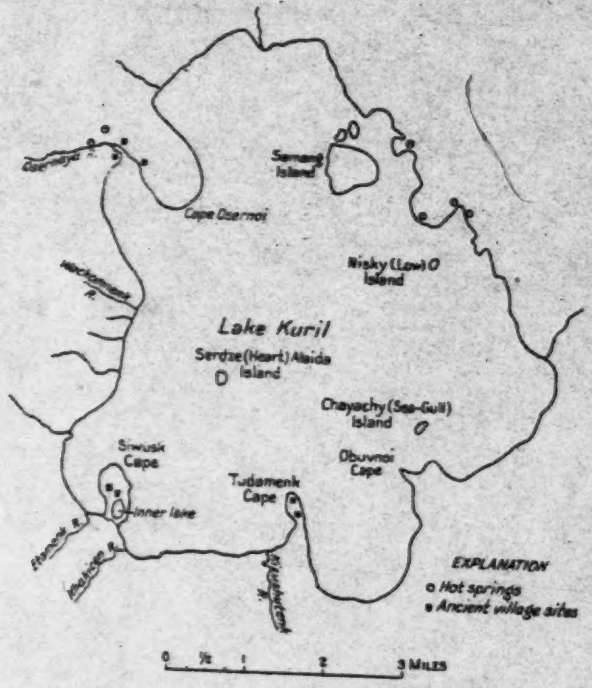
In the meantime a troop of Russian militia under command of Ensign Shaba arrived at the mouth of the Yavino River in a schooner from Bolsheretzk, and another detachment under Lieutenant Sotnikoff reached Yavino by land. Sotnikoff took command of both detachments. The combined Russian forces numbered only 80, and Sotnikoff did not venture an open attack but took refuge in a ruse. He despatched a man to Hundji, who pretended he had been sent by the inhabitants of Yavino to ask for a doctor and victuals. Hundji, a doctor and two interpreters all unarmed left Osernaya for Yavino. Along the way they were attacked from ambush. The interpreters were shot and Hundji and the doctor captured. Later a Russian detachment had a skirmish with a Japanese vanguard in which one Russian was killed and three were wounded. The Japanese doctor dressed their wounds. On the following morning the Japanese shot the cattle and dogs and left Osernaya in their schooners for the south.

609 This adventure resulted in the killing by the Russians of peaceful Japanese fishermen in many villages on the western coast of Kamchatka. Usually
563 the Kamchadal are well disposed toward the Japanese, who are just in their relations to the former, attending their sick and furnishing them with medicine.

167 After the Russian-Japanese War many Russian adventurers, mostly discharged
563 soldiers, found their way from Vladivostok to Kamchatka. Some were attracted by reports of rich profits obtained by sable hunting, others by the desire to introduce agriculture in Kamchatka, but they all remained and mixed with the native fishing population, Kamchadal and Russians. Another company of adventurers settled at the mouth of the Osernaya River, forming a new village. At first their condition was deplorable. Fishing was abundant but there was no market for exchange. They had no money, flour, tea and other commodities to which they were accustomed in their native places of European Russia. The women particularly longed for bread, and often said: "We would give up all the fish for one piece of bread, not mentioning our melons, fruits, meat, milk products and sweets." The majority of the immigrants were Ukrainians of southern Russia.

167 But two years before our arrival there all had changed. Enterprising firms,
228 partly with American money, began to develop fisheries for the export of Kam-
563 chatka salmon. A saltery and a cannery were established in Osernaya and the Russian colony there worked during the short summer as laborers. The fishing
464 company furnished them with money, food, clothing, fuel and building material and they were able to withstand the hardships caused by the most inhospitable of

167 seas, the Okhotsk, and the severest of climates. The factories were closed for the
563 eight winter months, but the summer was very busy. Scores of laborers were
228 brought on the company's steamers from the Amur River. Not all the necessary
464 structures were ready at that time, and the imported laborers slept under the cover of primitive shades. Mountains of salt lay in the open, melting from rains. A part of the laborers were busy preparing a kind of caviar from the roe of



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228 salmon. After taking out the roe they threw overboard the split fish, causing an enormous waste of food-material. The laborers in the saltery and cannery threw out from their seines all other fish than salmon, and from the latter the hump-back salmon, which was not in favor with the foreman of the plant.

172 From information gathered before my trip to the lake I knew that there were
000 several pits of ancient dwellings (see the map of the Kuril Lake). The natives have either died out or were exterminated by the Russian conquerors. My party

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000 consisted of myself, Mrs. Jochelson as assistant and physician to the party, and eleven laborers, of whom seven were Russians, three Kamchadals and one Japanese.

133 The Osernaya River, with its slanting bed, rocky banks, rapid falls and curves, forms a most difficult and dangerous route of travel. We had two boats and two canoes. One of the boats was for Mrs. Jochelson and myself; the other carried the tents, instruments, food and other supplies. The canoes served for reconnaissance and errands requiring despatch. It was very difficult to make progress on the turbulent river, particularly on the way up. Several times we had to disembark and carry our freight on our shoulders, while the boats were pulled by ropes through the rapids. (See Plate 5, figs. B, C.)

196 While there are no human habitations anywhere in the country, we were amazed to find well-beaten paths in the forests and on the mountains above the river, as if there were numerous human settlements. But realizing that these were roadways made by bears, we walked cautiously amid the dense vegetation with rifles ready for action. We did not see any bears while following these paths, but we heard the breaking and cracking of bushes and tree branches, and on the ground we found pieces of fresh salmon, the remnants of the bears' meals. The animals are very nervous and easily become alarmed. They have sufficient reason to be afraid of a man with a gun.

It is well known that at Lake Kuril and in its vicinity scores of bears are to be found. The abundance of fish and of many kinds of berries furnishes them ample food and favors their increase in number. The sparsity of human population is also favorable to the multiplication of the bears, although the few hunters of the coastal villages annually kill them by the hundreds.

133 After five days of painful effort we finally reached our destination. It was a windy day and our frail boats nearly capsized on the stormy lake, which is sur-
515 rounded by the peaks of extinct volcanoes and by steaming hot sulphurous springs,
757 the temperature of which reaches 100° C. (210° F.) and more. From our boat we observed steaming springs on the banks of the Osernaya when nearing the lake, but we had no time to stop to investigate them. We were told that the Kamchadal from Yavino and the Russians from Osernaya dig pits by the hot springs for bathing and curing different diseases. The temperature in these baths is reduced to 50° or 40° C.

136 From the head of the Osernaya River I directed my fleet to the Siwusk Cape (see map of Kuril Lake and Plate 5, fig. a). While excavating there we were entertained every day by the sight of bears fishing and gathering berries, particularly when we increased our field of observation by the use of opera glasses. The bears stood with their hind legs in the mountain rivers and creeks, and with their front paws managed to throw out on the banks the sea salmon, which in order to spawn ascend the rivulets that flow into the lake. The bears went after their prey and eating off the heads and spines, which are the most palatable parts of the fish, cast away the remainder. Their movements, turning, leaping and jumping, were so amusing that we could not restrain our laughter.

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000 My laborers were anxious to hunt bears, but I could not allow them to go on such an undertaking as the time was short and a Government steamer was expected on a certain date at the mouth of the Osernaya River to take my party to Petropavlovsk. However, I once allowed two of them to go for a night hunt and they secured a little bear cub. They cooked and ate the meat.

On the morning of our contemplated departure from Lake Kuril, when all the specimens found in the excavations had been packed, the lids of the boxes nailed down and the boats loaded, I was tempted to linger just a little longer upon seeing two she-bears playing with their cubs on the other side of a pond in the rear of the promontory. I accordingly delayed my departure until the afternoon, and singling out two of the best marksmen from my party, and equipped with a stereoscopic camera and a motion-picture camera, I started in the direction of the bears. We had to undress in order to cross the Etamenk River in the rear of the promontory, and to carry on our heads the bundles of clothing, the rifles and the cameras, so that they might not get wet. We reached the other bank of the river, dressed ourselves, and tried to pass as noiselessly as possible through the little jungle which led up to the open meadow where the she-bears were playing with their cubs.

We stopped on the outskirts of the forest and put up the cinema and stereoscopic cameras. As the bears were still too far away, I told one of my two men to make a circuit about them and frighten them from the rear so that they might come nearer to us. Both cameras were in readiness to take pictures, when suddenly at a distance of about thirty yards appeared a young black bear quietly passing by. I quickly took a stereoscopic snapshot and was about to start with my cinema, but the bear became frightened by the clatter of the falling shutter of the photographic camera and, instead of running away, rushed in our direction. We had no choice but to aim at his head and fire as he neared the camera.

After ascertaining that the bear was dead, we looked around. None of the other bears were to be seen; they had been frightened by the shooting and had disappeared. As I could not remain on the lake any longer, I had to give up the idea of another attempt to approach bears with peaceful intent. The bear that was killed appeared to be not more than three or four years old. I took the skin and the meat of a hind leg for the laborers.

We returned to our camp late in the day and were compelled to spend one more night on the promontory. Next morning, our archæological mission fulfilled, we started our journey to the sea.

172 The proceedings and results of the excavations were as follows: I selected for digging the ancient village site on a cape or rather a small peninsula in the south-
133 western part of the lake. The Kamchadal call this cape Siwusk (see map of the
136 lake). The village was located on the rocky extremity of the cape and on its slope near the small inner lake. The extremity of the cape rises over the lake about 16 meters. The sides of the inner lake which join the cape with the mainland are about six feet wide. From both sides of the cape two small mountain

rivers empty into the lake.

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rivers empty into the lake. They are rich in migrating salmon, which ascend the Osernaya River from the Okhotsk Sea to the lake for spawning in dense masses and attract numerous bears roaming the country. 172

Eighteen pits were dug—15 on the rocky hill and 3 below, where our tents are to be seen on Plate 5, figure 1. The general depth of the culture layers was about 3 feet. The pits under the hill were larger and seemed to be more ancient than those on the hill. No iron objects were found, but they yielded numerous pottery fragments, with handles inside, but no ornamentation. The pits were located mostly on the eastern slope of the hill, over a steep standing rock, and the outer margins of the pits seemed to have fallen down. The angles of the pits were somewhat smoothed; originally, however, the pits seemed to be quadrangular in shape, with the sides from 24 to 30 feet long. On the top of the cape was one pit of larger dimensions, probably that of a communal house for gatherings and festivals; this pit yielded a small quantity of objects; the greatest number of artifacts were furnished by the smaller pits. The following artifacts were found in the pits of the Kuril site:

(1) Nine arrow points (2959–2967) of quartzite and flint, the longest being 141 mm. (Plate 6, A).

(2) Twenty obsidian arrow points (2968–2987) (Plate 6, B). The greatest length was 80 mm. and the smallest 18 mm.

(3) Seventeen stone knives and other implements (2988–3004). The largest implement was 72 mm. in length (Plate 7, figs. 1–17).

(4) Twelve stone scrapers (3005–3016); the largest was 93 mm. in length (Plate 7, figs. 18–29).

(5) Twelve stone scrapers and other implements (3017–3028), the greatest length being 97 mm. (Plate 8, figs. 1–12).

(6) Eleven stone implements (3029–3039), some of them not finished. The greatest length was 100 mm. (Plate 8, figs. 13–23).

(7) Fragments of stone implements (3040).

(8) Forty-nine stone scrapers (3041–3089).

(9) Thirteen bone awls (3090–3102) Plate 12, figs. 1–13).

(10) Thirteen bone arrow heads (3103–3115) (Plate 12, figs. 14–26).

(11) Eight bone ornaments and other objects (3116–3123).

(12) Five bone implements (3124–3128) (Plate 13, figs. A).

(13) Fragments of bone implements (3129).

(14) Six fragments of bone implements (3130–3135) (Plate 13, fig. B).

(15) Four stone lamps (3136–3139) (Plate 14, figs. 4–7).

(16) Three stone lamps (3140–3142) (Plate 14, figs. 1–3).

(17) Three stone lamps (3143–3145) (Plate 14, figs. 4–6).

(18) Remnants of weaving (3151–3152).

(19) Pottery fragments of different pits (3153).

(20) A pottery fragment; the whole height of a pot (3154).

(21) A stone lamp; the first stage of manufacture (3157).

(22) Figure 66. A stone lamp of andesitic lava in process of manufacture (3158), 4/9 natural size.

(23) A pottery fragment from Pallan. A gift from the Governor of Kamchatka (3159).

(24) Three stone lamps (3165–3167) (Plate 15, figs. 1–3).

(25) Five stone lamps (3160–3164) (Plate 15, figs. 4–8).

(26) Seven stone axes (3168–3174). The largest is 197 mm. long (Plate 9, figs. 1–7).

(27) Twelve stone axes (3175–3186). The greatest length is 152 mm. (Plate 9, figs. 8–19). One of these specimens is illustrated in the text-figure 59 (3183). It is a rudely chipped adze of quartz schist, with a blade polished on both sides. Length, 122 mm.; greatest width, 25 mm.

(28) Four stone sinkers (3187–3190) (Plate 10, figs. 1–4).

(29) A stone sinker (3191) (Plate 10, fig. 7).

(30) Two stone sinkers with holes (3192, 3193) (Plate 10, figs. 5, 6).

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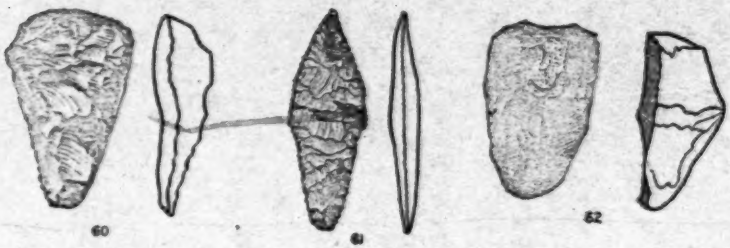
(31) A stone pestle (3194) (Plate 10, fig. 8).
(32) Six whetstones and one sinker (3210–3216) (Plate 11, figs. 1–7).
(33) Fifteen stone implements (3195–3209): axes, arrow points, awls and sinkers (Plate 11, figs. 8–22).
(34) Text-figure 60 (3217). A scraper of silicified slate; chipped from one side only; the curved working end is trimmed; the other side of the implement is flat with a few irregular chippings. Length, 60 mm.; greatest width, 38 mm.; thickness, 14 mm.
(35) Three pieces of pumice (3218).
(36) Four whetstones (3219).
(37) Thirteen broken stone lamps (3220–3232).
(38) Two stone axes (3233, 3234). One found near Petropavlovsk.
(39) A whetstone (3235).
(40) Paint (3236).
(41) A bone screw, double threads (3237).
(42) Ten iron and 1 copper implements (3238).
(43) Two stone hammers for chipping stone implements (3239).
(44) Different fragments (3240) of stone points.
(45) Fragments of wooden vessels (3241).
(46) A skull with the lower jaw (3242).



Scraper of silicified slate. Arrow blade of white chalcedony. Scraper-like implement of silicified slate.
All specimens from Kuril Lake.

(47) Skeletal bones (3243).
(48) Two separate bones (3244).
(49) Two bone implements (3245).
(50) Pottery fragments (3246).
(51) Text-figure 61 (3247), a, b. An arrow blade of white chalcedony. General length, 67 mm.; length of the stem, 31 mm.; greatest width, 23 mm.; greatest thickness, 7 mm.
(52) Eighteen fragments of stone implements (3248–3265).
(53) Text-figure 62 (3269). A scraper-like implement of silicified slate, evidently remade from a polished adze, as shown by the polished upper part. Length, 52 mm.; greatest width, 32 mm.; height of the working edge, 18 mm.; greatest thickness, 23 mm.
(54) An obsidian arrow point (3280).
(55) Two stone scrapers (3298, 3299).
(56) Three Japanese coins of the eleventh century (3306–3308). See above, p. 37.
(57) Three fragments of ornamented bone implements (3309).
(58) A stone celt (3311).
(59) A scraper-like or some other not completed implement of quartzite. Greatest length, 45 mm.; greatest width, 48 mm.; thickness of the working end, 18 mm. Judging by the great thickness as compared with the length and width it probably may be a rejected piece, due to malformation. Text-figure 53.
(60) A small arrow blade of reddish-brown flint. Length, 31 mm.; greatest width, 10 mm.; thickness, 3 mm. (2967). Text-figure 55.
(61) A lance blade or a knife of greatly silicified slate. One side is more convex, as shown by the transverse section. Length, 141 mm.; greatest width, 41 mm.; greatest thickness, 12 mm. (2955). Text-figure 56.

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(62) Not finished blade, evidently intended to be subsequently elaborated into an implement of a specialized type. It might also serve as a scraper. Of greatly silicified slate. Length, 98 mm.; greatest width, 50 mm.; greatest thickness, 28 mm. (3029). Text-figure 57.

(63) A scraper of dark gray flint; one side is flat with some chippings from one edge; the other side is regularly convex with broad chippings. The working edge is rounded. Length, 41 mm.; greatest width, 28 mm.; thickness 9 mm. (3075). Text-figure 58.

(64) A stone lamp of sandstone with an ear for tying it to the sledge or canoe when traveling or hunting. 4/9 natural size (3140). Text-figure 64.

(65) A stone lamp for the dwelling, of porphyrite, 1/3 natural size (3141). Text-figure 65.

As stated above, we left the Kuril Lake on August 16—a quiet calm day. We crossed the lake, on the right being the rocky almost triangular Alaid Island, where millions of birds were crying and rioting. The Japanese writer R. Torii[1] refers to a Kurilian tradition, according to which in ancient times a high mountain rose where we have now the Kuril Lake. It was a handsome lady, and the neighboring summits, jealous of her, made her life unbearable by mockery and sneering, so she decided to leave Kamchatka and settled in the open sea. This became a small rocky island, Alaid (in Aino, Chachakotan), located to the northwest of the Paramushiri Island, and Kuril Lake formed in the cavity. Baron Dittmar refers to another variant of the Kamchadal tradition concerning the origin of the Kuril Lake. There was formerly a volcanic summit Alaid, which disliked its location and wandered over to the sea. In the cavity left by the mountain, the Kuril Lake originated. The mountain, however, left a piece of rock in the middle of the lake which the Kamchadal call Heart-Rock or Navel-Rock. Kuril Lake, according to Dittmar, is the second greatest lake of Kamchatka, Kronotzkoye Lake being larger.[2] Geologists explain the origin of the Kuril Lake by the sinking of an old crater. The lake now lies 200 meters above sea-level and its depth in some places reaches 300 meters.[3]

The trip back to the seashore took us less than a day. Our boats were speeding and leaping over the rocks of the stony bed of the Osernaya River so that we had to use poles as brakes in order not to be overturned, particularly on the dangerous curves. Hunters, who come in spring on dog sledges to the Kuril Lake to kill bears, make quite primitive boats of twig-frames covered with bear skins in order to transport skins to the mouth of the Osernaya River. These skin-boats easily glide over the rocky rapids.

As I feared, the Government steamer had left for Petropavlovsk a day before we reached the shore. It did not stop at Osernaya, passing from the western strait to Petropavlovsk through the Kuril Strait. The fall storms had begun in the Okhotsk Sea and it was dangerous for the steamer to approach the coast, which has no harbor. We might have had to remain in Osernaya for the winter if it had not been for the administrators of the saltery and cannery, who were waiting for a special steamer before closing the plants. They had already sent off on a freight steamer the imported laborers and salted and canned goods. On the next day the

[1] Torii, *Études Archéologiques et Ethnologiques: Les Aino des Iles Kouriles*, Journal College of Science, Imperial University of Tokyo, vol. XLIII, Tokyo, 1919–1921, p. 30.

[2] Carl von Dittmar, *Travels and Sojourn in Kamchatka in 1851–1855*, Part I, St. Petersburg, 1901, p. 684 (in Russian).

[3] See *The Kamchatka Expedition of F. P. Riabooshinsky*, Zoological Division, Part I; P. J. Schmidt, Moscow, 1916. *The Investigations of the Zoological Division in Kamchatka in 1908–1909*, Chapter XII, written by Dr. A. N. Derzhavin, one of Professor Schmidt's assistants.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

000 longed-for smoke of a steamer appeared on the horizon, but it cruised in the sea many miles away, as it was not safe to come near the shallow shore in the turbulent weather. After three days of waiting the storm subsided, the steamer came nearer and a large boat was despatched to take us aboard. High waves almost capsized the boat and finally did at a distance of a few feet from the shore. We saw with horror that the four sailors were covered by the boat, but in a moment they appeared from beneath it with the rope in their hands and dragged the boat to the shore. When they had dried themselves in one of the houses we trusted ourselves and our collection from Kuril Lake to the frail boat and after two hours of struggle with the sea we mounted the rope-ladder of the steamer. Never before have I had such a stormy sea passage. After 5 days of sickness, sailing through the Kuril Strait, we reached Petropavlovsk, which we left for Vladivostok several days later on the last mail steamer of the season. The following remarks concerning the finds made on the Kuril Lake and the form of sites discovered in Kamchatka in general are necessary.

177 From the remnants of objects of Japanese culture no inference can be made as 325 to the age of the sites. As we saw before (see p. 62) Japanese objects, such as 554 coins, pieces of porcelain cups and metallic artifacts, might have reached Kamchatka 172 at a very early date. Krasheninnikoff says (I, p. 48) that the old Kamchadal knew the art of hammering fragments of metal. They did not temper iron but, placing it cold on a stone, forged it with another stone instead of a hammer. If the eye of a needle broke, they flattened the broken end and drilled a new eye with another needle.

According to Steller (p. 320), the Kamchadal paid homage to pieces of iron obtained from the Kurilians. The iron was set up on a pole in front of the dwelling as proof of the wealth and special importance of its owner. Krasheninnikoff also states (II, p. 97) that every Kamchadal possessing a fragment of iron was deemed rich and lucky.

177 The Kamchadal, now Russianized, no longer live in subterranean houses, 342 replacing the same by Russian block houses, or by huts of the Yakut type, also introduced by the Russians. According to the descriptions of Krasheninnikoff and Steller, the ancient Kamchadal earth-hut had no entrance room such as the Koryak use in their underground dwellings during the summer. The Kamchadal earth-hut was only a winter dwelling. Its smoke hole in the ceiling served at the same time as a window and door, through which one entered by descending along a log with notches or holes. This was the only entrance opening, but there was, however, an underground passage in the shape of a narrow channel, for the draught, which started from the hearth and came out of the house at the side. Women, children and the so-called transformed men used to go in and out through this passage. From the illustrations of the excavated pits of ancient Kamchadal dwellings we see that the channel-passage was an indispensable part of their habitations, and 342 we see also from illustrations that it could be directed to different cardinal points. 823 We may only surmise the reasons for such a diversity. We know that many of

342 the Siberian tribes, for instance the Yakut and Buryat, have the entrance of their dwellings faced to the east, where the sun rises. The sun is regarded as a benevo-
828 lent deity and it is advisable to have the door facing the sun in order to get its benefits. The back of the dwelling is turned to the west, the abode of evil spirits. The entrance of tents of nomadic peoples (Chukchee, Koryak, Tungus, Yukaghir and others) faces the east for the same reason. On the other hand the door of dwellings of maritime peoples faces the sea in order to give free access to sea-mammals, as though they were visitors. For the same reason the entrance of summer tents of Siberian fishers faces the river. According to Professor Petri the dwellings of the neolithic people of the Baikal region, the remnants of which he discovered, had entrances facing the south, the side of the sun's highest standing. Thus we can comprehend why the channel passage of the old Kamchadal dwelling faced, in some cases, the sea, in others the lake or a river in accordance with food, which one or another water basin supplied.

342 The shape of the pits was mostly oblong rectangular. On the Kuril Lake the pits were more or less quadrangular. The northern pits on the Kavran and Kulki Rivers were almost circular in form, thus nearing the shape of underground dwellings of the Koryak. The channel-passage is fitted in some cases to the middle of the oblong side of the pit and in others to the middle of the transverse side.

The largest pit, 34 by 30 feet, was excavated on the Nalacheva Cape and the smallest, 16 by 15 feet, on the Nalacheva Lake. The length of the channel passage ranges between 7 and 16 feet. With few exceptions, the channel-passage is longer, the larger the pit.

161 As the present remains of the pits of the former pit-dwellings are undoubtedly
592 smaller than the former dwellings themselves, on account of earth and sand deposited by winds and accumulated mold from decayed grass, we may draw the
361 conclusion that the ancient Kamchadal population was rather numerous and Kamchatka was densely inhabited. The pits are very near each other, and the shores of the Nalacheva Lake, as well as other places in Kamchatka, are covered with them. According to Krasheninnikoff, each pit-dwelling sheltered several related families. Often several pit-dwellings were located in one place, forming a village surrounded by earthen walls and trenches.

342 The Kamchadal pit-dwellings were used only during the winter. In the summer the Kamchadal lived in huts on piles several meters high. They were ascended by means of notched logs which could be drawn up to the platform of the huts. At present these elevated huts serve as storehouses. In some places, however, they are still used as summer dwellings (see Plate 4, B).[1]

In the pit excavated on the Osernaya River near the Kuril Lake, no traces of wooden posts were discovered. This may be regarded as a witness of the great age of the pit—the posts having decayed to such a degree that no trace of them is left.

[1] The summer pile-dwelling is also in use among the Gilyak but its posts are not as high as those of the Kamchadal pile-dwelling. The pile-dwelling, as an adoption from Siberia, is also reported from some places in Alaska (see H. P. Steensby, *An Anthropo-geographical Study of the Eskimo Culture*, p. 186). The storehouse on posts is known everywhere in Siberia, as well as in North America.

1. [Plate 4, A (not B) is a photograph of an elevated hut -- Analyst]

5: Jochelson A-5 (1910-11) 1928 Kamchadal

342 According to Krasheninnikoff the ancient Kamchadal had still another kind of summer dwelling, the superterrene grass lodge called bashabash. Unfortunately he does not state its shape—whether it was of a conical or hemispherical type. The bashabash was put up at the fishing places near the dwellings on piles and served chiefly as a place for cooking, which could not be done on the wooden platforms of the pile-dwellings.

261 757 171 White clay, pieces of which were found in some of the excavations, was eaten by the Kamchadal, according to Krasheninnikoff (II, p. 180), as a remedy for diarrhœa. Bogoras relates (*The Chukchee*, p. 200) that the reindeer Chukchee, the Koryak and Lamut in Kamchatka, occasionally use as food a kind of white clay called by them nute-ecen (earth-fat). The Kamchadal called the white clay "earth sour cream." Sternberg tells (*The Gilyak*, p. 17) of a Gilyak favorite dish for treating guests, called moss, which consists of a mixture of the gluey broth of fish skins, seal's fat, berries, rice, and sometimes of minced dried fish, to which the solution of white clay is added.

It must be noted that the use of some kinds of clay as food is not limited to Siberia alone. The eating of edible clay has been observed among certain Guiana Indians,[1] Carib and Antillean islanders,[2] and among the people of Georgia and the Carolinas.[3] Deniker refers to many other places where the habit of eating certain earthy substances—kaolin, clay, limestone—has been observed. He calls this habit *Geophagy* and explains it by the need of supplying the needed mineral substances (calcareous or alkaline salts).[4]

[1] W. E. Roth, *An Introductory Study of the Arts, Craft and Customs of the Guiana Indians*, Annual Report of the Bureau of American Ethnology, 1924).

[2] William Sheldon, *Brief Account of the Caribs who Inhabited the Antilles*, Transactions of the American Antiquarian Society, I, 1820, pp. 393–435).

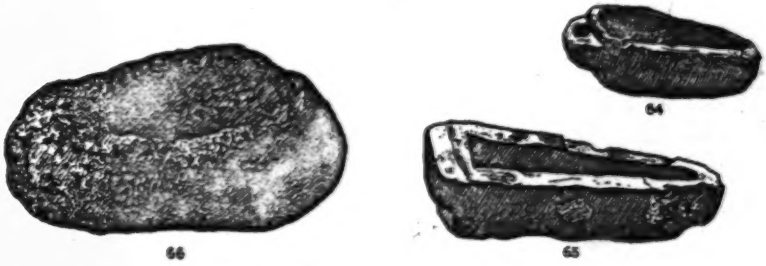
[3] Charlotte D. Gower, *The Northern and Southern Affiliations of Antillean Culture*, Memoirs of the American Anthropological Association, Number 35, 1927, p. 26.

[4] J. Deniker, *The Races of Man*, London, 1900, p. 145.

CHAPTER VII

STONE LAMPS

171 I discovered 36 stone lamps in excavations in Kamchatka. Some of them were broken. All the types of ancient Kamchadal stone lamps are shown in
354 Plates 14 and 15 and text-figures 64 to 66. They are not remarkable for great diversity as to size and form. I mentioned Aleut lamps[1] longer than 310 mm., and one lamp 1 meter long. There is in the U. S. National Museum at
172 Washington an unusually large stone lamp (No. 90476) from Kodiak Island which weighs 67½ pounds.[2] An Eskimo stone lamp 43 inches long (i. e., somewhat



64. Stone lamp of sandstone.
65. Stone lamp of porphyrite.
66. Stone lamp of andesitic lava, in process of manufacture.
All of Kuril Lake.

longer than a meter), weighing about 50 pounds is in the American Museum of Natural History of New York. Dr. Stefanson saw several larger lamps, but was unable to purchase them from their owners.[3]

354 The Kamchadal stone lamps show the following shapes: circular, elliptical,
172 egg-like and sad-iron in outline. No lamps of rectangular form, like those of the Aleut, and clam-shell shaped or crescentic in outline, like those of the Eskimo of Cumberland Gulf or Point Barrow, were excavated in Kamchatka.

354 Lamp No. 3158 shows the cavity rudely picked out with a hammerstone in
324 the process of manufacture. All the other illustrations of lamps show them in a finished shape and polished. The straight rims of some lamps were chiseled out
172 with hard quartz chisels (see No. 2183). Most of the lamps are flat-bottomed, so they stand without support. The lamp was put on a wooden stand in a somewhat

[1] W. Jochelson, *Archæological Investigations in the Aleutian Islands*, p. 74.
[2] Walter Hough, *The Lamp of the Eskimo*, Annual Report, U. S. National Museum for the year 1897, Washington, 1898, pp. 1027–1057.
[3] See Vilhjamur Stefansson, *My Life with the Eskimo*, New York, 1913, p. 249.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

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slanting position (in the sad-iron shape the narrow end was lower) so that the tallow or blubber could run down to the wick from the heat of the flame. The Kamchadal used bear's tallow or seal's blubber, and also fish oil for lighting purposes. The present Kamchadal sometimes still use stone lamps for lighting, but often a tin box, iron frying pan, or a clam-shell substitutes for the stone lamp. In order to be relieved of the sharp odor, smoke and soot of the burning lamp the present Kamchadal put over the lamp a funnel made of birch bark, upside down, the upper tube of which is led outside through the ceiling (see figures 67, 68).[1] The wick consists of a bunch of dry grass, moss or of rag placed at the edge of the slanting lamp. At present the Kamchadal women make wicks of plaited nettle threads. Like the Aleut lamps, the Kamchadal stone lamps had no bridges or special grooves for the wicks, which we find in the Eskimo lamps. The only use of the Kamchadal lamp was for lighting purposes. The Kamchadal did not warm themselves over the lamp, like the Aleut, nor cook like the Eskimo. The Kamchadal had sufficient

354 787

wood for making a fire when necessary, and their hearths warmed their earth-huts and served for frying meat and cooking vegetables and soups in clay vessels. The lamp was lighted from the hearth, which was usually always burning. The hearth was covered with ashes for the night, so that the smoldering fire might not be extinguished during the night. The fire of the hearth was looked on as the protector of the dwelling, and it was regarded as an unhappy omen should it go out. Once a year, however, at the beginning of winter, the family fire was put out, the hearth cleaned from old ashes, and a new fire started by the drill and sacred fire-board. The burning stone lamps were also extinguished and lighted again from the hearth's new fire.

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The Kamchadal lamps were made mostly from hard rock material, usually varieties of quartz. No lamps of soapstone, material in use among the Eskimo, were found in the Kamchatka excavations; neither were any of bone, of which the ancient Aleut made lamps. As the wick was placed by the Kamchadal at the edge of the lamp the borders of a bone lamp would have been burned off by the flame.

The cavity for oil or fat in some Kamchadal lamps represents a flat bottom with straight sides, while in others the bottom is rounded (see Plates 14, 15).

[1] Figures 67 and 68 are taken from Dr. W. N. Tyrshov's book: *Along the Western Coast of Kamchatka*, Memoirs of the Imperial Russian Geographical Society on General Geography, vol. XXXVII, No. 2, St. Petersburg, 1908, in Russian, figures 18 (p. 342) and 29 (p. 342).

5: Jochelson A-5 (1910-11) 1926 Kamchadal

CHAPTER VIII

POTTERY

METHODS OF COOKING FOOD OF THE ANCIENT KAMCHADAL

114 252 323 415

At present the Kamchadal do not make clay pots. Until recently the opinion was widespread that they were not familiar with pottery, even in former times. Steller[1] and Krasheninnikoff,[2] in speaking of the ancient Kamchadal method of cooking food, mention only boiling in wooden troughs by means of red-hot stones, and there is nowhere in the writings of these authors a reference to clay vessels. Schrenk[3] considers the absence of pottery among the Kamchadal as proved. He contends also that pottery was unknown to any of the so-called Palæ-Asiatic peoples, with the exception of the Eskimo, whom he classes among them.

We wish to clear up the contradiction between the statements of some travelers, that the old Kamchadal cooked food in wooden troughs by means of red-hot stones and our archæological finds of clay vessels.

Both means of cooking food, by boiling it in wooden troughs and in clay pots, were used. Pottery vessels were used in the permanent winter dwellings, while wooden troughs were used when traveling in winter or moving to fishing places in summer. Clay pots, being light breakable vessels, were not carried along, either by dog-teams or in canoes.

We must admit that Krasheninnikoff and Steller had no chance to observe cooking in clay pots, or to see the Kamchadal pottery, although that may appear improbable, when considering their long stay in Kamchatka and their ample and interesting description of the life of the Kamchadal in all other respects. As to the cooking in wooden troughs, both Krasheninnikoff (I, p. 362; II, pp. 38, 45, 46 and 74) and Steller (p. 322 and App., p. 36) describe in detail how fish and meat of land and sea animals were cooked with edible roots and other vegetables.

R. Torii says that the Sakhalin Ainos made clay pots and at the same time used dug-out trunks for boiling meat and fish in water heated by red-hot stones. He relates the same concerning the Kurilian Ainos. While moving for fishing and hunting purposes from one island to another and not being able to carry with them breakable pottery, they cooked their meals by means of hot stones put in wooden troughs filled with water.[4]

[1] G. W. Steller, *Beschreibung von dem Lande Kamtschatka*, Frankfurt und Leipzig, 1774.

[2] S. P. Krasheninnikoff, *Description of the Land Kamchatka*, vols. I–II, 1819, St. Petersburg (in Russian).

[3] Leopold von Schrenk, *Reisen und Forschungen im Amur-Lande*, Band II, St. Petersburg, 1857, p. 139.

[4] See R. Torii, *Études Archéologiques et Ethnologiques: Les Aino des Iles Kouriles*, Journal College of Science Imperial University of Tokyo, vol. XLII, Tokyo, 1919–1921 p. 194.

The method of boiling water by means of red-hot stones is known among many peoples—the Eskimo, Polynesians, New Zealanders and others. The Kamchadal of central Kamchatka, says Bogoras (*The Chukchee*, p. 194), even now extract fish-oil by trying out the fish in a dug-out with heated stones. The same was told by Dittmar of the Kamchadal of the village Khichi on the Kamchatka River (Carl von Dittmar, *Reisen und Aufenthalt in Kamtschatka in den Jahren 1851–1855*, p. 326, St. Petersburg, 1860, Part I). In the work of Dr. Aurel Krause (*Die Tlinkit Indianer, Ergebnisse einer Reise nach der Nordwestküste von Amerika und der Beringstrasse*, Jena, 1885, p. 178) there is an illustration showing how the Tlinkit get fish-oil from the salmon *Thaleichtys pacificus* by boiling it in a dug-out heated with stones. In northern European Russia and Siberia beer is prepared by the same method (see L. S. Berg, *The Discovery of Kamchatka and Bering's Expeditions*, Leningrad and Moscow, 1924, p. 12, in Russian).

5: Jochelson A-5 (1910-11) 1928 Kamchadal

REVIEW OF THE RELATION OF THE AINOS TO THE KAMCHADAL

000 As the Kamchadal pottery is closely connected with and probably adopted from the Ainos, it will be of interest to review the prehistoric and historic relations of the Ainos to the Kamchadal.

As admitted by many anthropologists, the Ainos are of a stock akin to the races of Europe, with some slight Mongolian characteristics adopted in Asia. The route by which the Ainos passed from the west to the east is not known, but probably they are a branch of the dolichocephalic Aryans Din-lin, mentioned in the Chinese annals, who afterward became mixed with Turkish and Mongolian tribes.

About 4,000 years B.C. the whole Japanese archipelago as far north as Yezo was occupied by Ainos. The population was, however, sparse. The Ainos were a genuine continental tribe. They had no boats and, as Torii suggests, crossed the Korean Strait on rafts, from the continent of Asia. There was probably more than one wave of Ainos from the continent. Then Mongoloid invaders came from the continent. The first wave of Tunguso-Mongolic conquerors appeared in Japan between 2000 and 1000 B.C. They forced out the southern Ainos to Yezo. The second wave of Tungus reached Yezo in the fifth or sixth century A.D. They were already partly mixed with Ainos, and these mixed-blooded invaders forced the Yezo Ainos farther to the north, and in their turn the Yezo Ainos forced their kin of the first wave to proceed to the Kurilian Islands. A part of them attained in their migration the southern part of the Sakhalin Island, settled there and continued to make pottery of the primitive type.

After a certain period of peace the Sakhalin Ainos were attacked by a second wave of Ainos coming from Yezo, but in view of the danger of being overpowered by the Orok-Tungus and Gilyak coming from the north, both waves of the Sakhalin Ainos made a common stand and became consolidated.

Those Ainos of Yezo, who did not leave for the Kurilian Islands or Sakhalin and who were not at the same time subdued and mixed with the Mongoloid invaders, took refuge in the mountainous and less favorable localities of the island.

Before the Tunguso-Mongols reached the middle of the Japanese Archipelago, the southern islands (Liu-Kiu and Kiu-Siu), inhabited by Ainos, were attacked by southern invaders of Indonesian origin. Advancing later to the north they met with the resistance of the Tungus and the mixed-blooded Aino-Tungus population, and finally entered as a third element in the ethnic compound of the Japanese nation. A certain infusion of Chinese blood may also be mentioned.

This somatological amalgamation of the Japanese people is shown in the results of the anthropological work by Professor Matsumura when observed by provinces. Although he measured a selected class of the Japanese population, students (males and females) of universities and normal schools, nevertheless we see that, in provinces where the Aino element may be supposed to lead, the dolichocephalic index and a lower stature predominate.[1]

[1] Akira Matsumura, *On the Cephalic Index and Stature of the Japanese and their Local Difference: A Contribution to the Physical Anthropology of Japan*, Anthropology Institute, Tokyo Imperial University, Tokyo, 1925.

000 We have said before that the Ainos were not acquainted with navigation, coming to the islands on rafts. Later they learned to build clumsy boats from the Japanese—not from the Indonesians, who are expert navigators; neither did they adopt the skin boat from the Chukchee and Koryak. As to shape, their dug-outs and boats do not resemble the canoes of the Kamchadal.

Figures 69–74 show objects found in 1880 by Dr. Tarii in a neolithic site on the island Shumushir.
Fig. 69. Fragment of a bone comb ornamented with interwoven curves, reminding one of the decoration of the Kamchadal bone belt buckle of Plate 16, figure 2.
Fig. 70. Bone comb resembling the Kamchadal comb of Plate 16, figure 2. I am inclined to regard them both as implements for making decorative parallel lines when the clay is still wet. It may be that they served both objects: as hair combs and implements for decoration of pottery.
Fig. 71. Fragment of a bone comb with broken-off teeth.
Fig. 72. Half of bone belt buckle. The decorating interwoven curves are much larger than on the preceding buckles, both Kamchadal and Kurilian. Five drilled holes along the broken edge were intended, as it seems, to bind together the two broken halves.
Fig. 73. Bone buckle of smaller size, ornamented by irregular circles and straight lines.
Fig. 74. Bone case for fishing hooks.

177 854 While the Ainos had adopted nothing from the East-Siberian tribes as far as concerns navigation, they made some cultural acquisitions from the Kamchadal or were influenced by them in some respects. The Kurilians weave grass baskets of the same kind and material and in the same manner as the Kamchadal do. The same is true of wooden utensils. On the other hand the Kamchadal adopted from the Kurilians the mode of manufacture of bone combs, belt buckles and ornamental motives. The Aino as well as the Kamchadal women use the head-band for carrying children on the back.[1]

1. [For additional culture traits shared by the Ainu and Kamchadal see category 171--Analyst]

5: Jochelson A-5 (1910-11) 1928 Kamchadal

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Some Kamchadal and Kurilian objects and their decorations are shown for the purpose of comparison. Plate 16 shows objects found by the author while digging on the shores of the Kuril Lake (see description of this plate).

According to Torii (*Les Ainou des Iles Kouriles*, p. 277) the wooden combs of the present Aino-women resemble very much the bone comb shown in figure 69. Chamberlain says (*Things Japanese*, p. 33) that ornamentations on pottery were made by the Ainos with a wooden comb, stamp or pointed stick. This is just the same as I concluded concerning the combs and other instruments illustrated on Plate 16.

To return to the proper subject of this chapter, the pottery. According to the investigations of Torii, the Kurilian women of the island Shikotan manufactured pots, jars, saucepans and plates from clay tempered with sand and chopped grass as late as the last century. About three generations ago they abandoned pottery making, using Japanese and Russian iron vessels of every kind.

Torii investigated numerous neolithic sites on the Shumushur and Paramushir Islands, and everywhere he found remains of pottery of the same primitive kind, which was in use the last time among the northern Kurilians. On the contrary, the Kurilians of the second wave left on the southern islands, Kunashiri and Iturup, remains of pottery of greater perfection. In the same period the Ainos of the second wave who remained in Yezo abandoned the manufacture of pottery, getting all kinds of wooden and iron vessels from Japan.

That part of the Ainos who were forced out from Yezo by the second wave of Japanese Ainos and went to the island Sakhalin, instead of the Kurilian Islands, continued to manufacture their primitive pottery. The second wave of Ainos who came to Sakhalin from Yezo brought with them metal vessels. The first wave being assimilated with them ceased to manufacture pottery, except vessels necessary for religious ceremonies. We know that practices connected with the cult persist everywhere long after they have been eliminated in ordinary life. The remains of this ceremonial pottery are identical with the remains of pottery of the Kurilian manufacture.

According to Mamiya Rindzo, the Sakhalin Ainos on the shore obtained iron kettles and pans from Japan and those from the interior got theirs from Tungus.[1]

POTTERY OF THE AINOS

The Ainos of Yezo and the Kurilians, according to Munro, were not supposed to be conversant with pottery until R. Torii in 1899 found that the Kurilian Ainos not only had used, but recently had made pottery of a coarse description.[2]

Dittmar found "small clay vessels" of most primitive workmanship. "The clay crumbled under the hands, it had evidently been badly (if at all) baked," says Dittmar. As the pots were saturated with blubber, he thinks it possible

[1] R. Torii, *Études Archéologiques et Ethnologiques: Les Ainou des Iles Kouriles*, Journal College of Science, Imperial University of Tokyo, 1919–1921, pp. 188–191.
[2] N. G. Munro, *Prehistoric Japan*, Yokohama, 1911, p. 195.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

that they had been lamps, and not cooking pots; but this opinion may be offset by the shape, size and, especially, the depth of the pots found.[1]

Witsen, based on information received from cossacks, stated that the Kamchadal used clay vessels.[2] The Cossack Atlassov,[3] mentioned above, says in his report to the Government that the Kamchadal made pottery in his time.[4]

We see that before our excavations there were some indications as to the former pottery-making of the Kamchadal, but these were somewhat vague. Our diggings furnished more definite data concerning the Kamchadal types and methods of manufacturing pottery. We discovered two kinds of coarse clay vessels—with handles inside and with holes near the upper rim of the pots—and a kind of more elaborate ceramics with outer ornamental designs.

POTS OR PANS WITH EARS INSIDE

Fragments of pottery with handles inside were found by the writer in many diggings of the central and southern parts of Kamchatka, and he was fortunate to discover one complete pot in a pit on the shores of the Nalacheva Lake and another on the Nalacheva Cape (see Plate 17, figs. 1, 3). We may say that not only the wheel was unknown to the Kamchadal manufacturer of this rude kind of pottery, but neither the coil method nor the basket modeling process was applied by him, though there remained some impressions of basketry on the outer side. It seems that the vessels were worked out from single blocks of clay and beaten into shape. It is the crudest pottery. The dimensions of figure 1 have been given before (see p. 48). The thickness is about a third of an inch. It is difficult to say whether this kind of pottery was especially burnt before being used or was baked by the fire while cooking. The fact that these vessels remained intact after having been long buried under the ground proves that they were solidly made and water-tight. Being smeared with fat and blackened by smoke, they received a coating against water, which may be compared with the glaze of higher types of pottery. To make the clay more resistent it was tempered with sand, gravel and the hair of sables' tails.[5] The Cossack Atlassov, when presenting to the Government the tribute of the Kamchadal in sable-skins, delivered many of them without tails. In apologizing he said that the Kamchadal make boas of sables' tails and used the hair for tempering clay.

There is no doubt that the inside ears were intended for suspending the pot over the fire, as they afforded better protection to the suspending cord or thong than those outside the pan.

[1] Carl von Dittmar, *Reisen und Aufenthalt in Kamchatka in den Jahren 1851–1853*, St. Petersburg, Part I, p. 233. Dittmar gives the following measurements of a pot: upper diameter, 12 cm.; lower diameter, 10 cm.; maximum width, 14 cm.; depth, 10 cm. This vessel, therefore, had an aperture smaller in diameter than the middle part, and its bottom was still smaller than the aperture. Clay lamps are of a quite different shape, as shown by Bogoras, Nelson and other explorers of the northern regions.

[2] Nicolaas Witsen, *Noord en Oost Tartarye*, Amsterdam, vols. I-II, 2d ed., 1705, p. 673 (1st ed., 1692).

[3] See before p. 1.

[4] See G. Spanky, *Vladimir Atlassov the Conqueror of Kamchatka*, Jour. Imperial Russian Geographical Society, 1858, vol. XXIV, p. 194 (in Russian).

[5] Munro (*Prehistoric Japan*, p. 196) supposes that grass was mixed by the Kurilians in their primitive pottery, the clay of which became black, due to the carbonization of the grass. R. Torii (*Les Ainou des Iles Kouriles*, p. 180), referring to information received from old Kurilian people, says that the ancient Kurilian Ainos tempered clay for pottery with sand and minced grass called "nahkaski."

1. The end of the 17th Century -- Analysis

5: Jochelson A-5 (1910-11) 1928 Kamchadal

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We have referred to Mr. Torii who found that the Kurilian Ainos used this kind of pottery. Mr. Mamiya Rinzo displayed a clay pan with handles inside from Yezo.[1] Mr. S. Suzuki has also shown a clay pan of rough make with the handles inside from Sakhalin Island.

The question arises as to where we may look for the place of origin of this kind of pottery: in Kamchatka or Japan. Pottery in general needs a sedentary life for its proper development. The same may be said of the primitive pottery

Fragments of ancient Kurilian pottery.

in question. It could develop among the original settlers of Japan, the Ainos, and spread to the north, to Sakhalin, Kurilian Islands and Kamchatka. The sedentary or semi-sedentary fishers of Kamchatka might have adopted it from the Kurilians.

According to Mr. N. Tanaka, "within the last 20 years earthenware pans with handles inside were in use in Musashi and the island of Hachijo."[2]

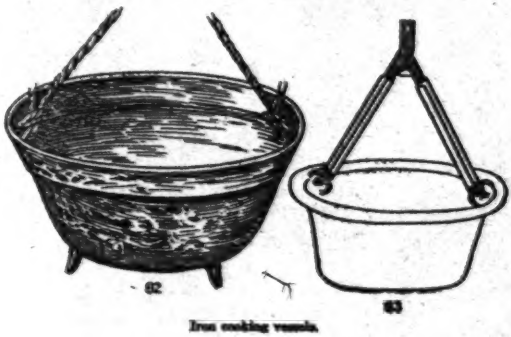
Illustrations of the following fragments of ancient Kurilian pottery are taken from R. Torii's work (*Les Ainou des Iles Kouriles*, Plate XXXIII). Figures 75 and 76 show fragments of Kurilian pottery with inside ears. Figure 77 shows a

[1] The Japanese investigator Mamiya Rinzo spent the years 1804-1817 in Sakhalin.
[2] See Munro, *Prehistoric Japan*, Yokohama, 1911, p. 186. Cited from Tokyo Jinruigaku (Tokyo Anthropological Magazine), No. 18, 1887.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

171 fragment of the lower part and the flat bottom of a clay vessel. Figure 78 represents a fragment of a clay vessel with a drilled hole for tying it by a cord to the hole 415 of another broken piece of the vessel. In figure 79, Torii gives an outline of a clay pan with two ears inside. It is not clear whether there was a third ear, like that 172 in the Kamchadal clay pots.

Figure 80 shows a fragment of ancient Aino pottery with an ear inside, found, according to Torii, in Sapporo on Yeso. It is shown one-third natural size. Figure 81 represents a clay vessel of ancient pottery with ears inside found in Esashi, Yeso; two-ninths natural size. This drawing is taken from an article by the late Professor S. Tsuboi in the Bulletin of the Tokyo Anthropological Society (vol. IV, No. 37, March 1889, p. 227). This vessel has only two inside ears. A rough sketch of a Sakhalin clay pot with ears inside is shown by Mr. Suzuki in his work, *Karafuto Nikki*.[1] Like figure 81 this vessel also has only two ears.



82 83

Iron cooking vessels.

According to Torii (*Les Ainou des Iles Kouriles*, p. 279) fragments of pottery with ears inside the pots were found also in Japan, i. e., on the Nippon Island. Thus we see that the manufacture of this kind of primitive pottery was not limited to the Kurilian Islands and Sakhalin only. It spread all over Japan—over localities formerly inhabited by Ainos. But from nowhere, except in Kamchatka, were clay vessels with three inside handles reported.

Figure 82 shows a sketch of an iron pan from Sakhalin with ears inside the vessel. The illustration was published by Torii (*Les Ainou des Iles Kouriles*, p. 195). Figure 83 shows a drawing of an iron pot with loops on the inside surface. It is from a photograph of a piece in the Museum of the Imperial University in Tokyo, kindly forwarded to me by Professor Akira Matsumura. The cord is covered with birch bark in order to protect it from the heat of the boiling pot. It must be noted that the iron pots (figs. 82–83) have only two inside ears like the

[1] Suzuki traveled in Karafuto (Sakhalin) Island in 1853. See *Karafuto Nikki*, Shigehisa Suzuki, With Notes and Addenda by Takeshiro Matsuura, 3 vols., Tokyo, 1880.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

171 Aino clay pots referred to above.[1] Such iron pots, says Munro, have been found
415 in the pits of Hokkaido (Yezo) with wares of wood and implements of stone.[2] The Yezo Ainos, he says in another place, have long been accustomed to use iron pots from Japan or Siberia, some of which had handles inside, and it is reasonable to suppose that the clay pan with handles inside was copied from the useful iron model. I wish to add to this statement that nowhere in Siberia have I seen iron pots with handles inside, and there is no doubt that such iron pots were made in Japan and copied from the more primitive model, the clay pot, and not the reverse.[3]

415 Plate 17, figure 2, shows the upper part of a clay pot, the three fragments
172 of which I cemented together and which had no handles. The height of the pot and the shape of the bottom, whether flat or conical, are unknown. As this pot has no handles or holes for suspension, one may suppose that the bottom was flat, intended to rest amid the burning logs and in the ashes of the primitive hearth, which was the ground and sometimes had an enclosure of stones to confine the fire. This pot looks somewhat smoother than the pans with handles inside and its rim is decorated with four parallel lines. It was probably deeper than the shallow pans, but it was made of the same coarse clay and not subjected to a special burning. The decorative lines were made when the clay was still wet, by a bone instrument like that shown on Plate 16, figure 10. Fragments of upper parts of clay pots with decorative parallel lines are shown on Plate 18, figure 2.

A DIFFERENT KIND OF POTTERY TO THE NORTH OF KAMCHATKA

415 Fragments of a different kind of clay pots were found by the author in the
323 excavations of northern Kamchatka. Plate 19, figure 1, shows pottery frag-
171 ments of the Kulki site and figure 2 of the Kavran site. The majority of these
172 fragments seems to be from small vessels, the clay to be burnt, and the pots more decorated than those of southern Kamchatka. In some cases impressions of baskets or ropes may be seen, but most of the decorations, consisting of dots, lines, zigzags and other figures, were made by the hand by means of bone or wooden implements. Holes were found in many of the pottery fragments. The holes were made differently for particular purposes; those near the upper rim were made by an awl, when the clay was still wet, and intended to serve as loops for cords or thongs for suspension over the hearth. Other holes were made by a drill in order to mend broken pieces by tying them with sinew threads and smearing over the broken lines with clay. On Plate 19, figure 1, are shown both kinds of holes on two fragments. Going farther to the north we may point to a restored clay pot, from fragments found by the writer while digging an old Koryak site. The mouth of the pot has a diameter of about 27 cm., its height must have been approximately 27 cm., and the walls were 4 to 8 mm. thick. All potsherds found in the Koryak[4] territory are quite thin, so that their manufacture had little in

[1] It must be noted that the iron pot in figure 83 has, besides inside loops, three feet evidently for putting the vessel on a table or bottom for eating.

[2] Cited from Professor Tsuboi, Tokyo Anthropological Magazine, No. 16, June 1887.

[3] The Siberian iron and copper pots and kettles, manufactured chiefly in European Russia, have handles outside the vessels or on their upper rims.

[4] See the author's work, *The Koryak*, p. 640, fig. 185.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

common with that of the thick and clumsy clay lamps and unbaked quadrangular kettles of the modern Chukchee and Asiatic Eskimo. The potsherds found in the Koryak excavations were black from soot and fat, and were evidently well baked, as they remained strong and hard, although they had been lying in the wet soil. All these potsherds were made of coarse clay containing fine gravel and pieces of quartz. The Koryak pot referred to above was molded by hand, and all over the outside are the impressions of closely woven, twined basketry. Evidently this impression was made by taking a piece of twined fabric in one hand and pressing it against the moist pot, the twined woof being placed so that the lines ran at right angles to the rim. The pot had a conical bottom and it is possible that it was intended to be supported by stones or to rest in a cavity of the hearth.[1]

Proceeding farther to the north we find among the Chukchee and the Asiatic Eskimo a pottery somewhat like that of the Alaskan Eskimo. Their elongated rectangular form is adapted to the shape of the lamp over which it is hung in cooking. It may be that this form of pottery came to Alaska from Asia. Some clay kettles of the same shape from St. Lawrence Island are among the collections of the U. S. National Museum of Washington.

[1] We have seen before (p. 30) that neolithic sites in the Baikal Region yielded clay pots with a conical bottom which were supported on the hearth by stones. Professor Petri contends that pottery with flat bottoms appeared chiefly in the iron age. The pot with a conical bottom found by the author in a site of the Koryak territory may support Petri's supposition. On the other hand a fragment of a clay pot with a flat bottom from a neolithic site of the Ainos is shown in figure 77.

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Types of Kamchadal men, women and girls.

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A. Elders of the villages of the western shore of Kamchatka.
B. Group of blind men and women of the village Kharyuzovo.

5: Jochelson A-5 (1910-11) 1928 Kamch.
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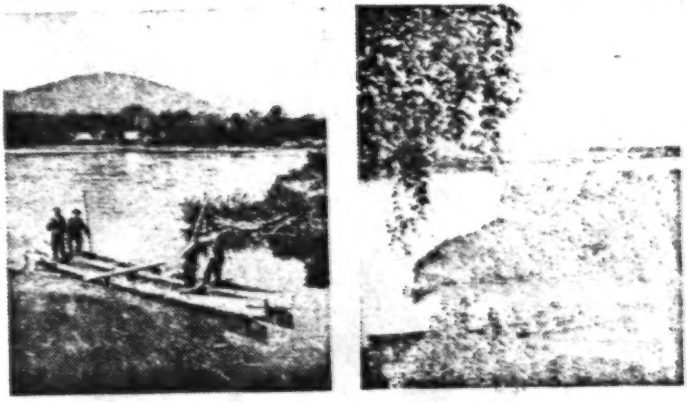

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A. Two boats bridged in order to carry author's party across the Avacha River.
B. The same bridged boats carrying the author's cart to a small island and from there across the Avacha River to the village Savoiko. The horses are forced to swim across. The river is not deep and the laborers are punting the boats with long poles.
C. Three bridged boats carrying the author's party and laborers from the mouth of the Tigil River to its tributary, the Kukki River. The laborers are punting the raft along the bank.

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A. A Kamchadal storehouse on posts which serves also as a summer dwelling.
B. Greek-Catholic chapel in the village Kharyusovo.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

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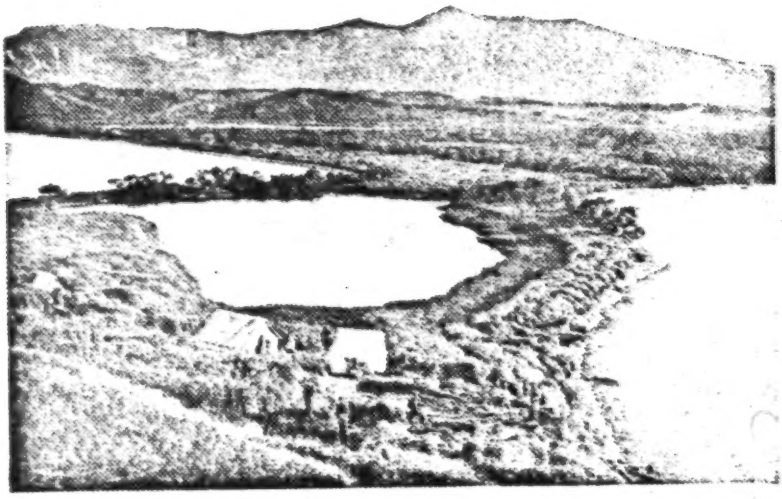

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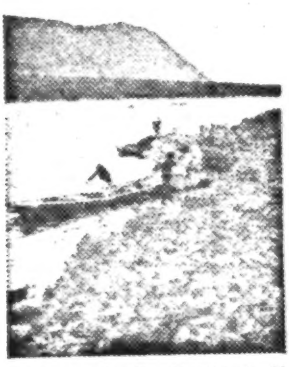

A. Inner pond on Cape Siwusk in Kuril Lake. In the foreground is the author's camp and the digging of two pits.
(See p. 5b.)
B. Unloading the boats, preparatory to ascending the rapids of the Osernaya River.
C. When rapids were encountered, the occupants of the boat disembarked and pulled at the ropes instead of the oars.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

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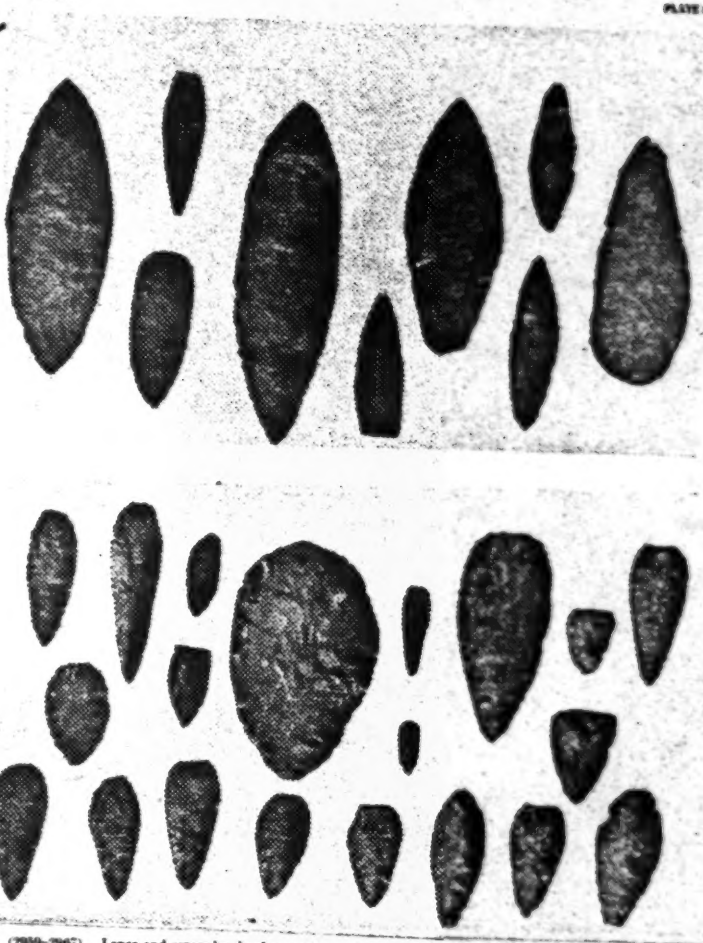

A. (2959–2967). Lance and arrow heads of quartzite. About one-half natural size; the length of the largest head is 141 mm.

B. (2966–2967). Lance and arrow heads of obsidian. About three-fifths natural size; length of the largest head is 80 mm. and that of the smallest 15 mm.

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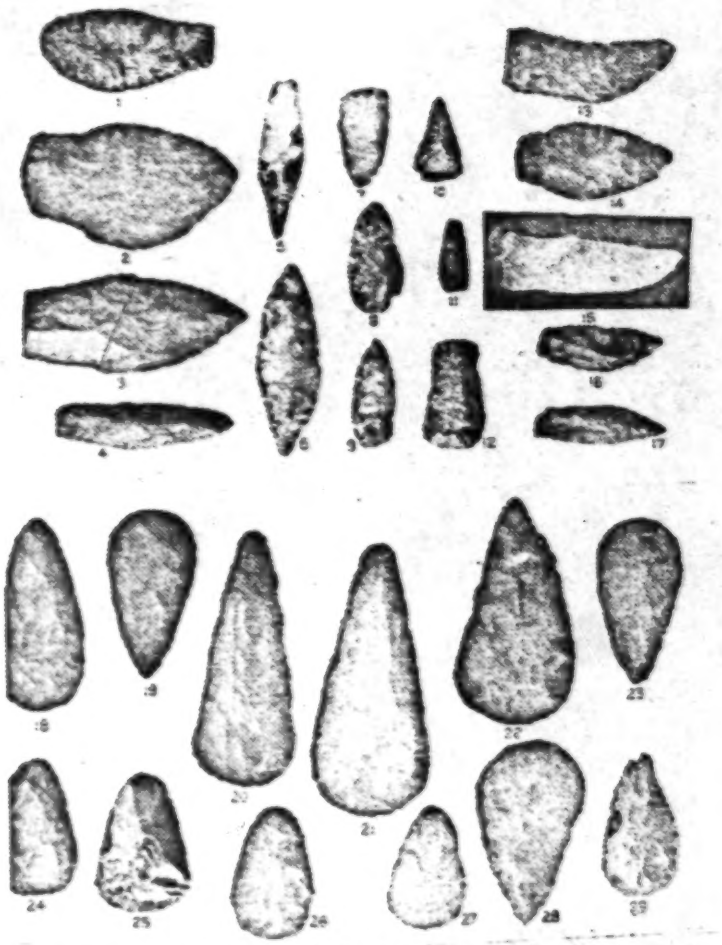
JOCHELSON PLATE 7



1 (2986). Man's knife of andesite, with wooden handle.
2 (2949). Man's knife of quartzite, with wooden handle.
3 (2960). Lance head of silicified slate.
4 (2991). Arrow head of quartzite.
5 (2992). Drill point of hornstone schist, with wooden or bone handle. Used for drilling wood, bone and also sinkers of volcanic tuff.
6 (2993). Arrow point of quartzite.
7 (2994). Arrow point with straight base, of silicified slate.
8 (2985) and 9 (2988). Arrow point with rounded base, of silicified slate.
10 (2997). Drill point of hornstone schist.
11 (2986). Small arrow point of quartzite, not finished.
12 (2989). Small adze of quartzite.
13 (3008). Curved carving knife of andesite, with handle.
14 (3001). Arrow point of quartzite.
15 (3002). Curved carving knife of light-green quartz schist.
16 (3003). Small carving knife of silicified slate.
17 (3004). Small arrow point of quartzite, unfinished.
18–24 (3005–3011) and 26–28 (3013–3015). Scrapers of quartzite.
25 (3012) and 29 (3016). Scrapers of andesitic obsidian.

All obtained in excavations on Kuril Lake. About three-fifths natural size; largest specimen 93 mm. long.

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JOCHELSON PLATE 9

1 (3017). Andesite knife for carving wood, with groovelike for securing it to wooden or bone handle.
2 (3016). Andesite point of a lance.
3 (3019). Skin scraper of quartz schist.
4 (3020). Skin scraper of quartz schist.
5 (3021). Fragment of an andesite point.
6 (3022). Spear point of quartz slate, unfinished.
7 (3026). Andesite point of a lance.
8 (3024), 9 (3025), 10 (3026). Andesite point of an arrow.
11 (3027). Andesite blade of a lance.
12 (3028). Same as figure 8.
13 (3029), 14 (3030). Andesite blade of a lance.
15 (3031). Skin scraper of silicified slate.
16 (3032). Andesite blade of a lance.
17 (3033), 18 (3034). Andesite blade for an arrow.
19 (3035). Flint blade for a lance.
20 (3036). Arrow point of quartz schist.
21 (3037). Fragment of a quartz schist point.
22 (3038). Flint blade for a lance, unfinished.
23 (3039). Andesite blade for a lance.

All specimens from Karl Lake.

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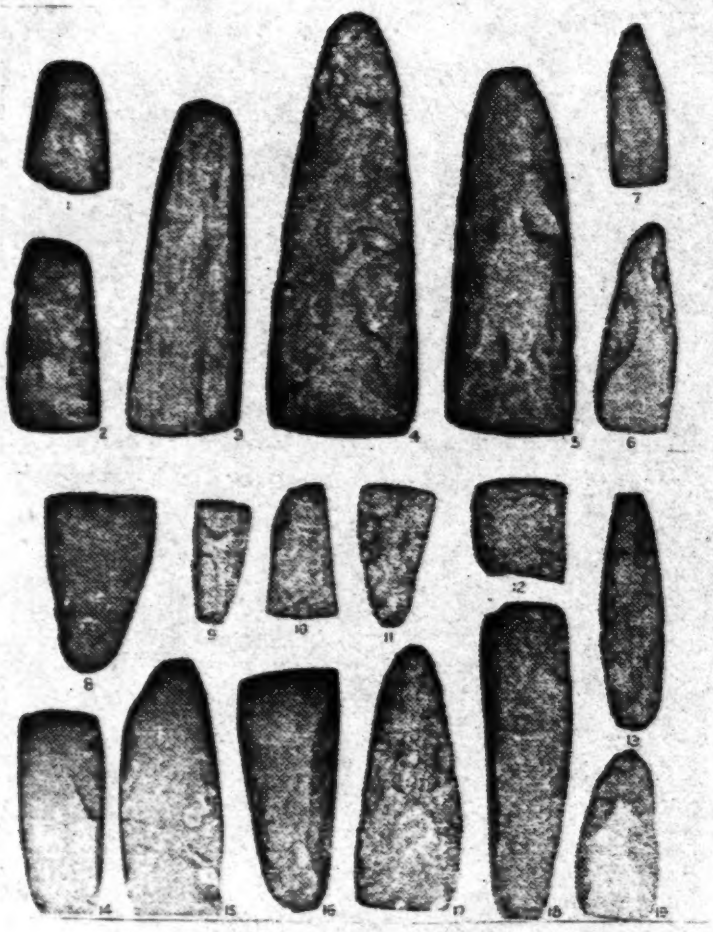

1 (3168). Adze of green quartz schist, polished. From Kuril Lake.
2 (3169). Adze of green quartz schist, blade polished. From Kuril Lake.
3 (3170). Ax of jasper, wholly polished. From Kuril Lake.
4 (3171). Ax of chalcedony (agate), partly polished. From Kuril Lake.
5 (3172). Ax of quartz schist, polished. From Kuril Lake.
6 (3173), 7 (3174). Adze of green quartz schist, polished. From Kuril Lake.
8 (3175). Adze of hornstone schist, not perfectly polished. From Kavran.
9 (3176). Adze of quartz schist. From Kavran.
10 (3177). Adze of jasper, polished. From Kavran.
11 (3178). Adze of quartz schist, polished. From Kavran.
12 (3179). Fragment of an adze of quartz schist. From Kavran.
13 (3180). Chisel of jasper, partly polished. From Kavran.
14 (3181). Adze of agate, polished. From Kavran.
15 (3182). Adze of jasper, polished. From Kavran.
16 (3183). Adze of agate, polished. From Kavran.
17 (3184). Adze of quartz schist, partly polished. From Kavran.
18 (3185). Chisel of jasper, polished. From Kavran.
19 (3186). Adze of green quartz schist. From Kavran.

The largest specimen of this plate, figure 4, is 197 mm. long.

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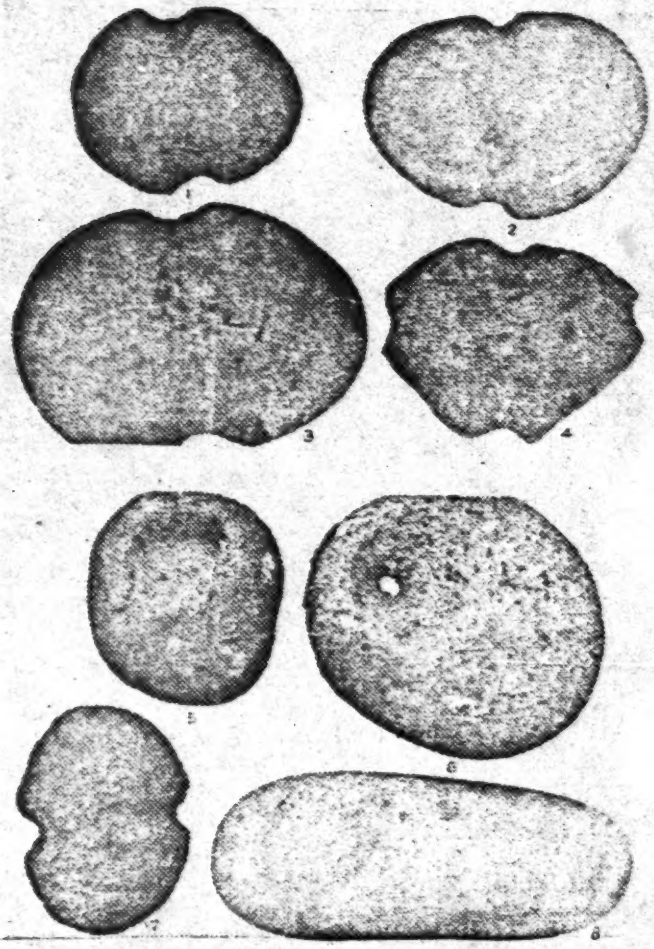

1 (3187). Fish-hook sinker of volcanic andesitic tuff from the mouth of Kavran River.
2 (3188), 3 (3189). Fish-hook sinker of quartz diorite from the mouth of Kavran River.
4 (3190). Fish-hook sinker of diabase porphyrite from the mouth of Kavran River.
5 (3191), 6 (3192). Fish-hook sinker of volcanic andesitic tuff with a drilled hole, from mouth of Kavran River.
7 (3193). Fish-hook sinker of volcanic andesitic tuff grooved all around, from Kuril Lake.
8 (3194). A stone pestle of quartzite for grinding food, from Kuril Lake.

5: Jochelson A 5 (1910-11) 1926 Kamchadal

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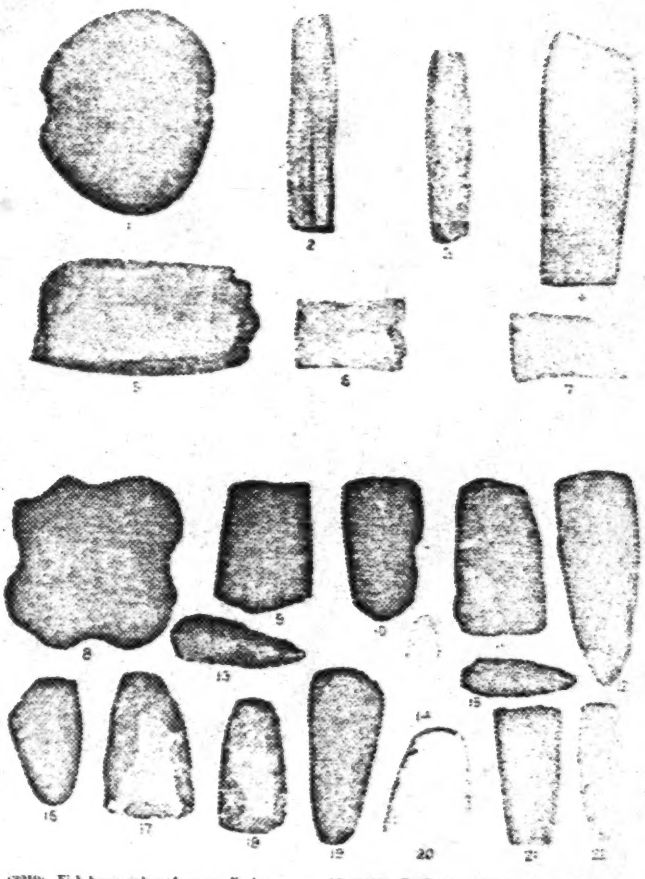

1 (3210). Fish-hook sinker of quartz diorite.
2 (3211). Whetstone of porphyrite for sharpening bone needles.
3 (3212). Whetstone of slate for polishing bone implements.
4 (3213). Whetstone of porphyrite for polishing stone implements.
5 (3214). Whetstone of tachylite tuff.
6 (3215). 7 (3216). Whetstone of slate.
8 (3195). Fish-hook sinker of diabase porphyrite.
9 (3196). 10 (3197). Fragment of an adze of dark-green quartz schist.
11 (3198). Adze of green quartz schist, unfinished.
12 (3199). Adze of jasper, partly polished.
13 (3200). Drill point of horn-tone schist.
14 (3201). Small chisel of light-green quartz schist.
15 (3202). Small arrow point of ande-site obsidian.
16 (3203). Fragment of an adze of green quartz schist.
17 (3204). 18 (3205). Adze of green quartz schist, partly polished.
19 (3206). Adze of dark reddish jasper, polished.
20 (3207). Adze of light-green quartz schist.
21 (3208). Fragment of an adze of dark-green quartz schist.
22 (3209). Chisel of quartz schist, only the edge is polished.

All the specimens of this plate were obtained in excavations on the shores of the Kuril Lake. Two-fifths natural size, the largest specimen is 132 mm. long.

Sr. Jochelson A-5 (1910-11) 1928 Kamchadal

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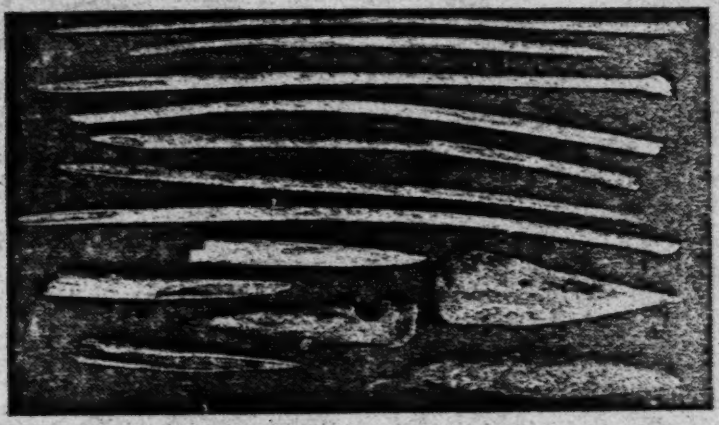

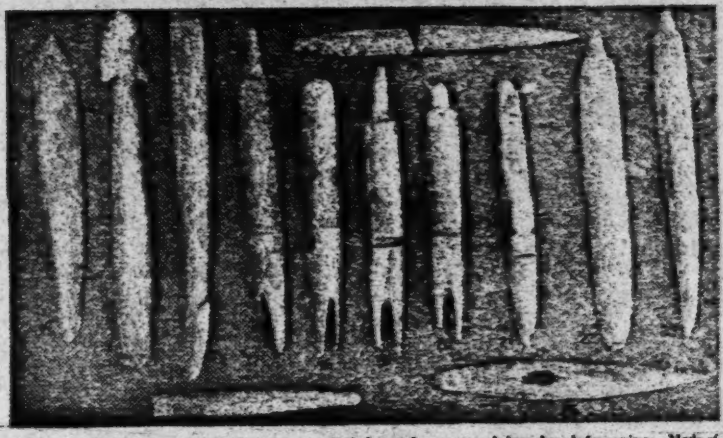

1 to 7 (3090–3096). Bone awls for splitting sinews of reindeer and sea-mammals into threads for sewing. Made of the bones of bird wings, mostly wild geese and swans.

8 to 10 (3097–3099). Bone awls of birds' legbones, used when sewing skins.

11, 12 (3100–3101). Bone awls made of birds' shoulder blades.

13 (3102). Awl made of wing bone of a swan. Both ends may be used when sharpened.

14 to 16 (3103–3105). Bone heads of bone arrows, partly decayed.

17 to 23 (3106–3112). Bone foreshafts of bear arrows. The stem of the foreshaft entered into a socket of the wooden shaft. A sinew cord was lashed around this joint. The upper end of the foreshaft is bifurcated to receive a stone blade. The stem of the blade was glued to the bifurcation and fastened by a sinew thread, lashed around the foreshaft, on which notches are to be seen for attaching the lashing thread. The bone foreshafts are partly decayed.

24 (3113), 25 (3114). Broken bone point which could be used as a head of an arrow of a bow or as a central prong of a dart for water birds. Figure 24 is in a decayed state.

26 (3115). Represents a head of a harpoon.

All specimens were obtained in excavations on the shores of the Kuril Lake. Three-fifths natural size.

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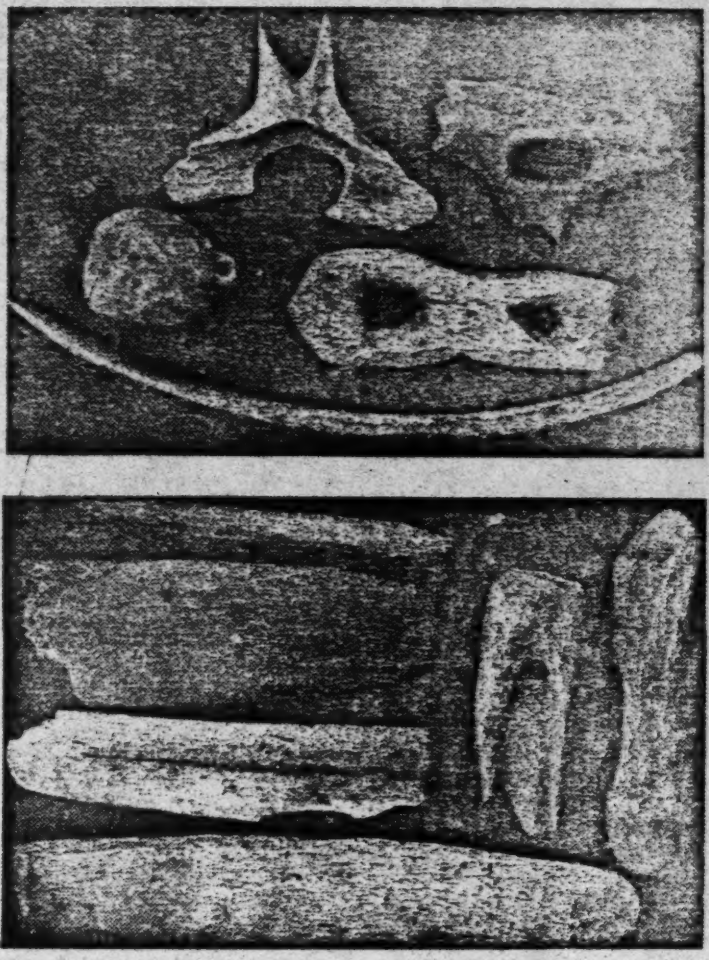
JOCHELSON PLATE 13



A

B

A. 1 (3124). Bone marline-spike for untying knots.
2 (3125). Similar implement with broken-off ends.
3 (3126). Bone ball with an ear for hanging, possibly as a decoration to woman's dress.
4 (3127). Bone implement for unknown purpose. It may have been used as a thong-drawer, or to attach dogs to a post.
5 (3128). Bone root-digger.
B. (3129-3133) Fragments of decayed bone implements.

All bone implements of this plate were discovered in pits of old dwellings on the shore of Kuril Lake. Three-fifths natural size.

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JOCHELSON PLATE 34

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1 (2211). Small lamp of quartz slate. Nalacheva Lake.
2 (2232). Cemented fragments of lamp of diorite. Kuril Lake.
3 (3136). Lamp of quartz slate. From Kuril Lake.
4 (3137). Lamp of quartzite. From Kuril Lake.
5 (3126). Lamp of sandstone. From Kuril Lake.
6 (3139). Lamp of quartz schist. From Kuril Lake.
7 (2921). Lamp of quartz schist. From Kavran site.
8 (2922). Lamp of quartzite. From Kavran.
9 (2923). Lamp of quartz slate. From Kavran.
10 (3142). Lamp of quartz slate. From Kuril Lake.
11 (3144). Lamp of quartzite. From Kuril Lake.
12 (3145). Lamp of quartz schist. From Kuril Lake.

Figures 1, 2 half natural size, figures 3 to 12 two-fifths natural size.

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1 (3160). Lamp of andesitic lava.
2 (3161). Lamp of quartz schist.
3 (3162). Lamp of andesitic lava.
4 (3163). Lamp of quartz schist.
5 (3164). Lamp of quartzite.
6 (3165). Lamp of andesitic lava.
7 (3166). Lamp of quartz schist.
8 (3167). Lamp of quartzite.

All specimens from Kuril Lake. About two-fifths natural size.

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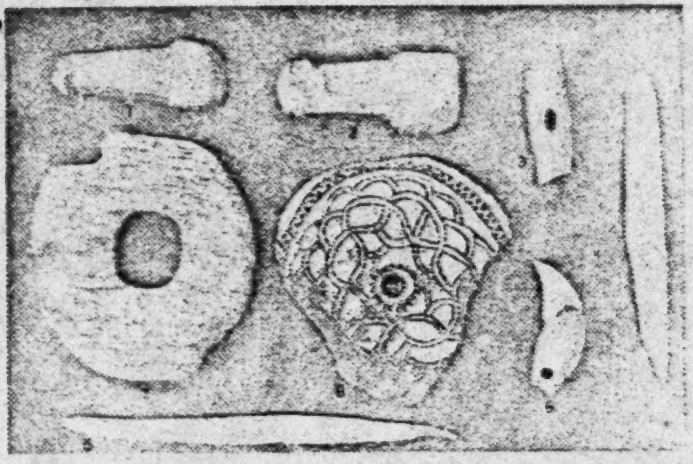

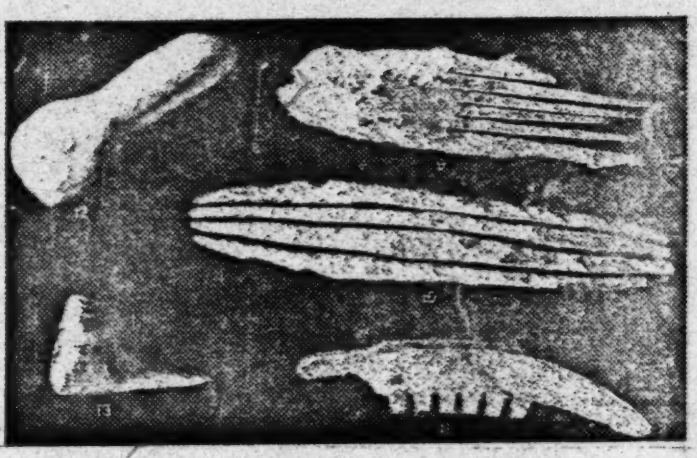

1, 2. Unknown bone implements. May be stamps to decorate clay pots when the clay is still wet.
3. Fragment of harpoon-bone head.
4 and 5. Seem to be decayed bone prongs of a bird dart.
6. A perforated seal's tooth, worn as ornament.
7. Bone belt-buckle without decoration.
8. Bone belt-buckle ornamented with engraved zigzags, interwoven curves and circles.
9. Half decayed bone comb.
10. Comb-like bone implement, as it seems to the author, for impressing parallel lines under the rim of clay pots.
11. Bone implement for stamping clay pots, as shown on potsherds on Plates 17 and 18.
12. Bone implement for making fillets under the rim.
13. Bone implement for ornamenting clay pots by puncturing.

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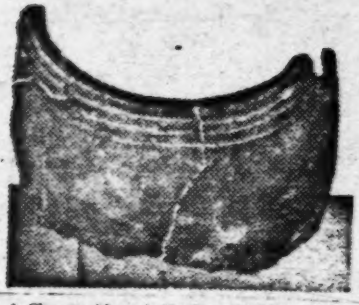

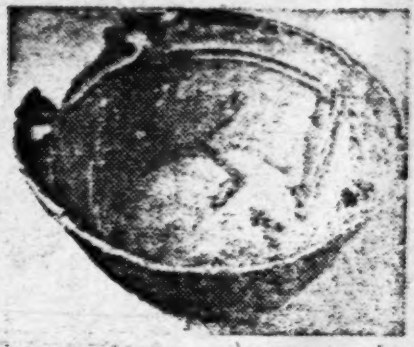

1. Clay pot with ears inside; discovered by the author in a pit of an old Kamchadal dwelling on the shore of Nalocheva Lake. The pot was split in two places, but complete, and later cemented by the author. The splitting may be regarded as a result of freezing and thawing of the soil. It was discovered at the depth of 3 feet 4 inches. Digging was done with great care. When a piece of the rim appeared, the spade was discarded and the earth from and around the pot was taken out by the hands. For the dimensions of the pot see p. 48.
2. Similar clay pot of smaller size, discovered in a pit on the Nalocheva Cape.
3. Portion of upper part of a clay pot without handles inside. It consists of three fragments cemented together by the author. No other pieces of the same pot were discovered and we do not know whether its bottom was flat or rounded. Outer parallel lines made by a comb-like implement are similar to inner parallel lines of pots with handles inside.

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Fragments of clay pots, some with cord inside. From Naiacheva Cape, Naiacheva Lake, and shores of Kuril
Some of these fragments have no parallel lines inside.

5: Jochelson A-5 (1910-11) 1928

[A 102]

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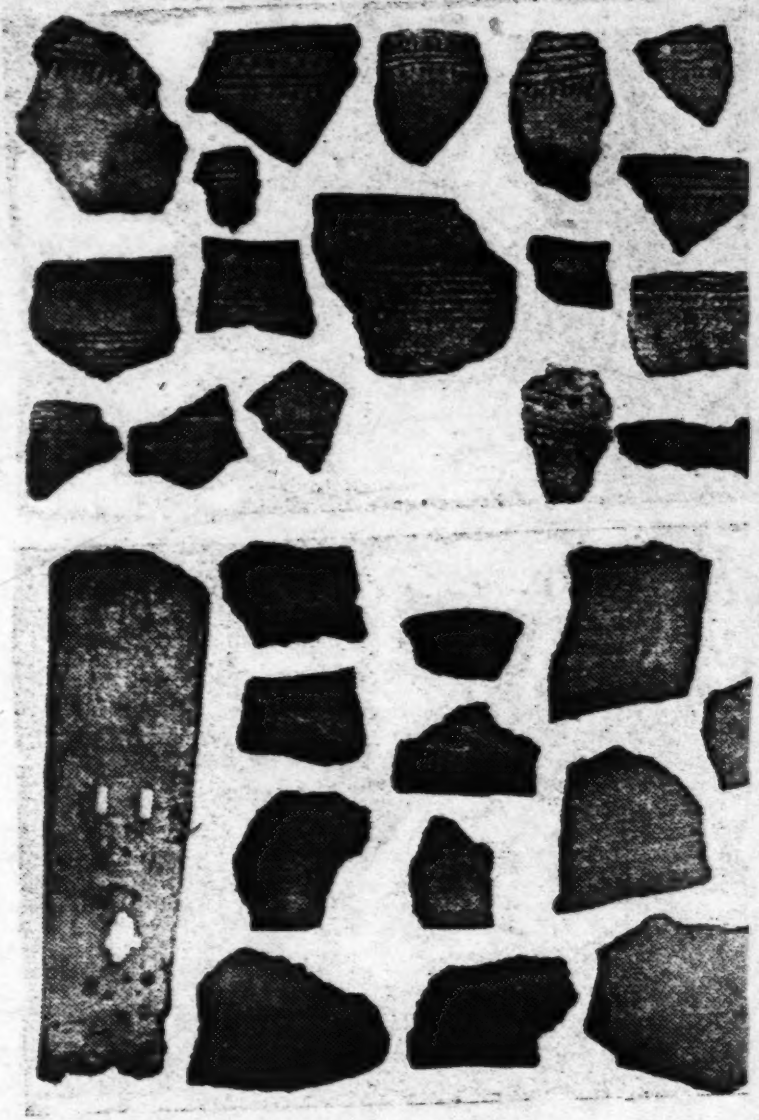

A (2704). 18 fragments of pottery discovered in the site of Kalki River.
B (2669–2673). 12 fragments of pottery found in excavations of the banks of Kavran River and a fragment of some bone implement.